

MISSOURI

AT THE

WORLD'S FAIR.



OFFICIAL PUBLICATION
OF THE
WORLD'S FAIR COMMISSION
OF MISSOURI.

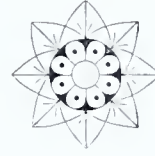


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MISSOURI



AT THE

WORLD'S FAIR



AN OFFICIAL CATALOGUE

OF THE

RESOURCES OF THE STATE, WITH SPECIAL REFERENCE TO THE EXHIBITS
AT THE WORLD'S COLUMBIAN EXPOSITION.



.....ISSUED BY THE.....

World's Fair Commission of Missouri



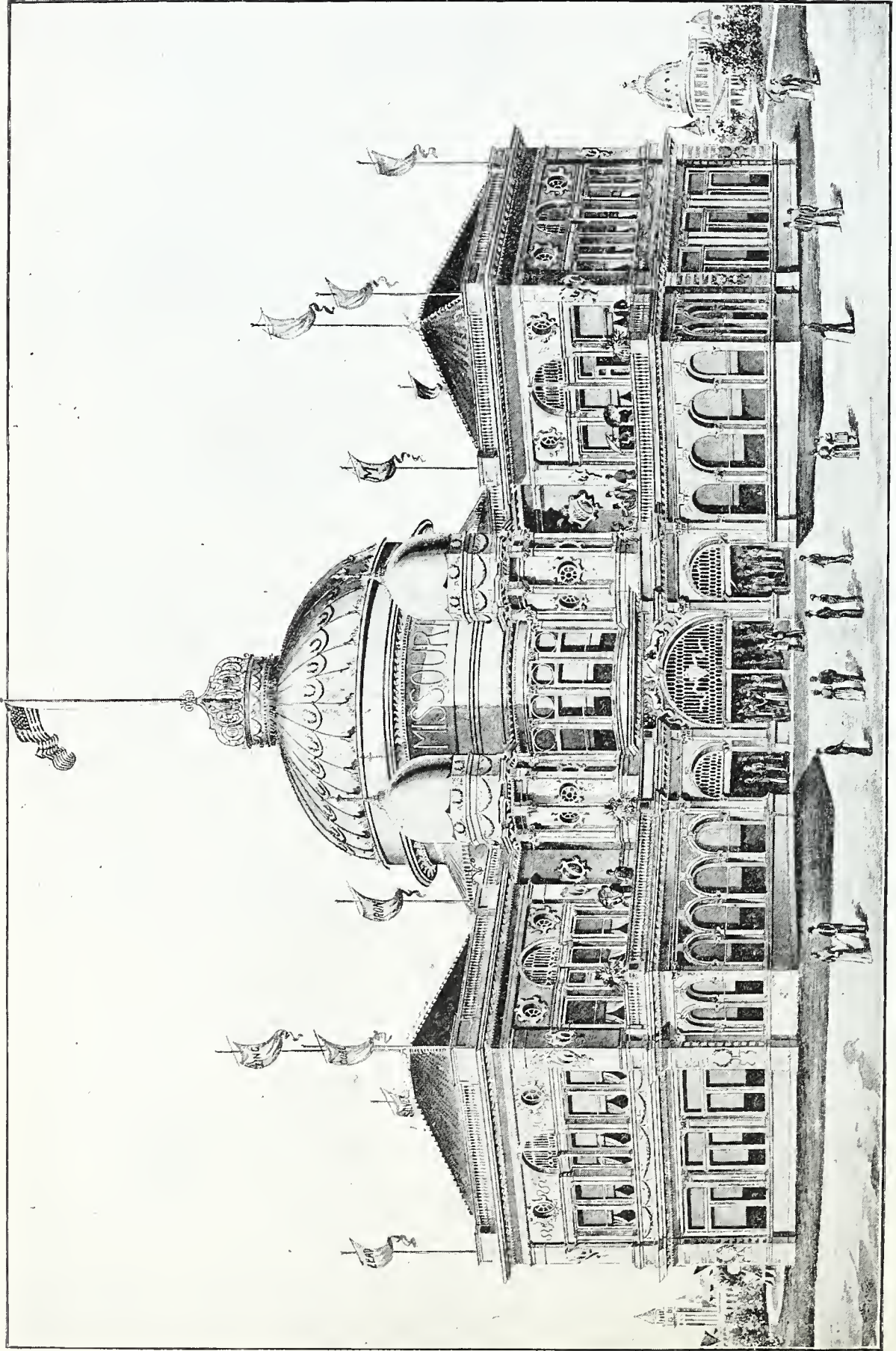
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EDITED AND ARRANGED BY
JAMES COX,

SECRETARY OF THE BUREAU OF INFORMATION OF THE ST. LOUIS AUTUMNAL
FESTIVITIES ASSOCIATION.

1893.

PRESS OF WOODWARD & TIERNAN PRINTING CO.



MISSOURI STATE BUILDING, WORLD'S COLUMBIAN EXPOSITION, CHICAGO, ILL.

MISSOURI.

Early History of a Great and Prosperous State.

THE first grant of land in Missouri was made on August 11, 1666, at which time the country was the domain of scattered bands of Indians, for the most part of a very friendly and quiet disposition. There were various tribes in the territory now known as the State of Missouri, and these spoke different languages and had different habits and customs. As far as can be ascertained from the meager records still extant, these tribes occasionally made war upon each other, but they do not appear to have entertained any of the traditional hostility against white men, or to have resented very bitterly the first invasion of their territory by Europeans. In July, 1673, a priest by the name of Marquette, and a trader named Joliet, led a small band of Canadians and Europeans from Quebec to the Mississippi river. The Indians did not resent the invasion, and the little band of pioneers and explorers was allowed to pass through the State and down the river to its junction with the Arkansas, and to return, without interference of any serious character.

This expedition took back with it to civilization the first record of the magnificent fertility of the Mississippi valley, and more especially of that portion of it now included in the favored State of Missouri. They told of a land flowing with milk and honey, of soil of extraordinary fertility, and of a variety of other conditions calculated to incite wonder and to create a desire to explore and even settle in such a favored land. Five years later LaSalle passed down the Mississippi river to its mouth. He also found the Missouri Indians peaceful and friendly, and his reports added to the wonder already created by the statements made by members of the earlier expedition.

For the next half century Missouri received little attention from the white man, but in 1755 Ste. Genevieve was founded by the French, who appear to have settled without difficulty, and without going through the formality of any special treaty with those who claimed the land as their birthright. It is interesting, in view of the grand display of mines and minerals made at the World's Fair by the State of Missouri, to note that these pioneers from France settled in Missouri on account of the richness of the lead mines they discovered in it. Their foresight did them unlimited credit, and although a century elapsed before any one began to make a fortune out of Missouri lead, the possibilities in this direc-

tion are now fully appreciated. After the French miners had been at work about eight years, the Peace of Paris was signed and the Mississippi river made the boundary line between the British and French possessions in North America. This treaty seems to have had very little influence on the actions of the early settlers, and it is more than possible they were not aware that it had been signed. Trading continued with the Indians, and the villages of Cahokia and Kaskaskia grew in importance until Pierre LaCade removed his goods and business to the site on which the great City of St. Louis has since grown up, and which he named in honor of the sainted monarch of France.

In February, 1764, about two weeks before the arrival of LaCade, Auguste Chouteau commenced business in the city. Some trouble was experienced with the natives, but rather on account of their excessive friendliness and their desire to live on the bounty of the white men, than any hostility, real or imaginary. The policy of moderation was adopted and very few conflicts took place. The city, if such the village could be called, enjoyed a period of business activity for four or five years, when the final transfer of all the French possessions west of the Mississippi river was made to Spain. The change was regarded as a disaster, but the records seem to show that very little in the way of practical results followed the cession, and St. Louis gradually increased in prosperity. Louis St. Ange de Bellrive, the commandant of Ft. Chartres, removed a small garrison to the new colony and made several grants of land, two of which covered blocks of the city, which have since become of immense value. These grants have always been recognized as legitimate and unsailable.

The next few years were uneventful in the history of Missouri and St. Louis. The Spanish code of laws was put in operation, but the French settlers accepted the change in a peaceable manner and everything progressed in a harmonious way. The Indians continued to be friendly in character, and, although St. Louis was fortified and guarded against attack, history does not record a single instance of an assault being made by Missouri Indians on Europeans. About the year 1780, considerable activity was displayed on work on the fortifications, and for three years a garrison was maintained. Provisions became considerably dearer than in the adjoining

country, and the scarcity of bread led to the nickname of "Pain Court" being applied to the young city. The year 1785 was marked by serious floods, which resulted in the construction of levees and other precautions, and proved in the long run an advantage to the commerce of the trading point. Some trouble was also experienced from a number of river pirates and marauders who were reinforced by outlaws, runaway negroes and half-breed Indians. These seized a number of boats from time to time, and hampered the commerce of the Mississippi river to a considerable degree.

But these drawbacks did not materially retard the progress of the colony, and as the fear of Indians was gradually reduced, immigration from New England became more general. At the end of the century, a

District of Louisiana to the Territory of Louisiana, and in 1809 the Territory of Missouri was established. A year prior to this the first newspaper in the State appeared, and in 1818 the first land office was established. Thousands who had located themselves on the public domain, as soon as it became United States territory, hastened to the office and secured legal titles, and a more settled condition of affairs resulted. In June, 1813, Congress passed an act formally establishing the Territory of Missouri, and on the first Monday of the same year, Missouri was advanced to the second grade of government. Governor Benjamin Howard organized the territory into five counties, and called the first election for delegate to Congress.

The Territory Legislature also organized and pro-



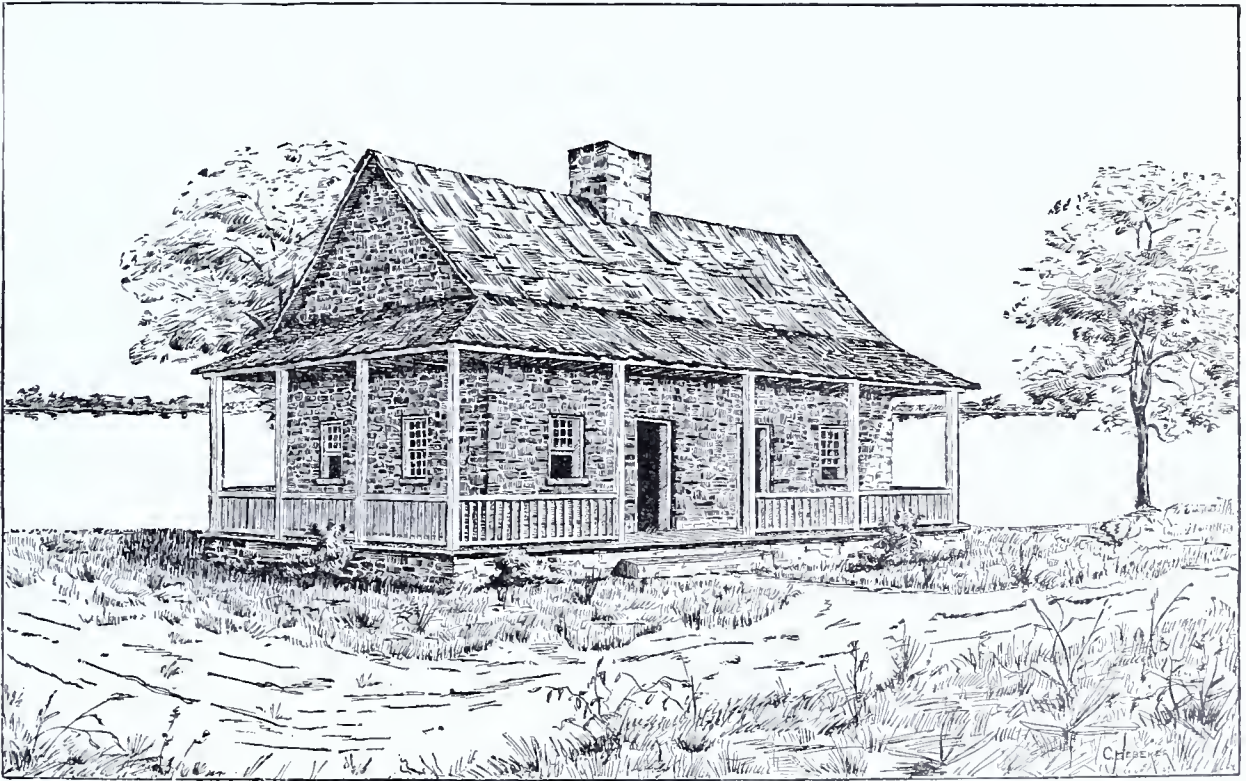
THE FIRST GOVERNOR OF MISSOURI AND HIS RESIDENCE—1820.

marked change for the better became apparent in the habitations and modes of living of the people. There was quite a rush for land grants, and when, in the year 1804, the United States authority was extended over Missouri, the territory was in a prosperous and growing condition, although its inhabitants only numbered 10,340. Six years later the population had just doubled, and in 1820 it was found to have reached 66,586, by which time St. Louis had become quite an important city and river port. The purchase of the District of Louisiana from the French attracted an immense quantity of capital to it, and Missouri being situated in the center of the Mississippi valley and being also the most fertile portion of the territory, its onward progress became rapid and marked. Congress, in March, 1805, changed the name of the

ceded at once to enact laws fixing the boundaries of counties, establishing courts, defining crimes and punishments and electing officers to administer the laws. It also incorporated the Bank of St. Louis, and named the counties St. Louis, St. Charles, Ste. Genevieve, New Madrid and Washington. The life of the territory was short, for the rapid progress made by it soon gave it sufficient importance to claim the honor of statehood. So uniform was the progress made by Missouri and St. Louis that great impetus was given to manufactures of every kind, and costly buildings of brick and stone began to be general. Banks became numerous, and the commercial importance of the Territory became so great that in 1818 it applied for admission to the Union, being able to give ample guarantees as to its claims to the honor.

The statehood question excited great interest, as well as considerable bitterness, and pending its settlement there was an unfortunate set-back in commercial progress. Finally the State constitution was agreed to, in 1820, and in the following year Missouri became a full-fledged State. This re-established confidence and at once led to an immense increase in commerce and manufactures. The Mississippi river began to be utilized in more adequate manner as a means of transportation, and business of every character began to be much more general. St. Louis at this time had a population of about 5,000, of which one-fourth were French. It contained about 600 houses, of which a third were of brick or stone. Its business was much larger than its population would indicate, and in the fur trade alone its returns were very heavy. In December, 1822, the Legislature

In 1830, the United States census showed the population of Missouri to have increased to 140,455, and from that time the growth has been enormous with scarcely any set-backs. The re-apportionment act of May, 1832, gave the State a second representative in Congress and increased its presidential vote in the electoral college to four. The State was at once divided into four electoral districts, and an election which was held almost immediately afterwards resulted in the return of four democratic electors. The State of Missouri was enlarged shortly afterwards and the remaining Indians removed from it. It continued to prosper and acquire national importance, and in 1835 a railroad convention was called in St. Louis, at which sixty-four delegates were present. The object was to secure railroad accommodations for St. Louis in view of the fact that the first



GOVERNMENT HOUSE, 1765.

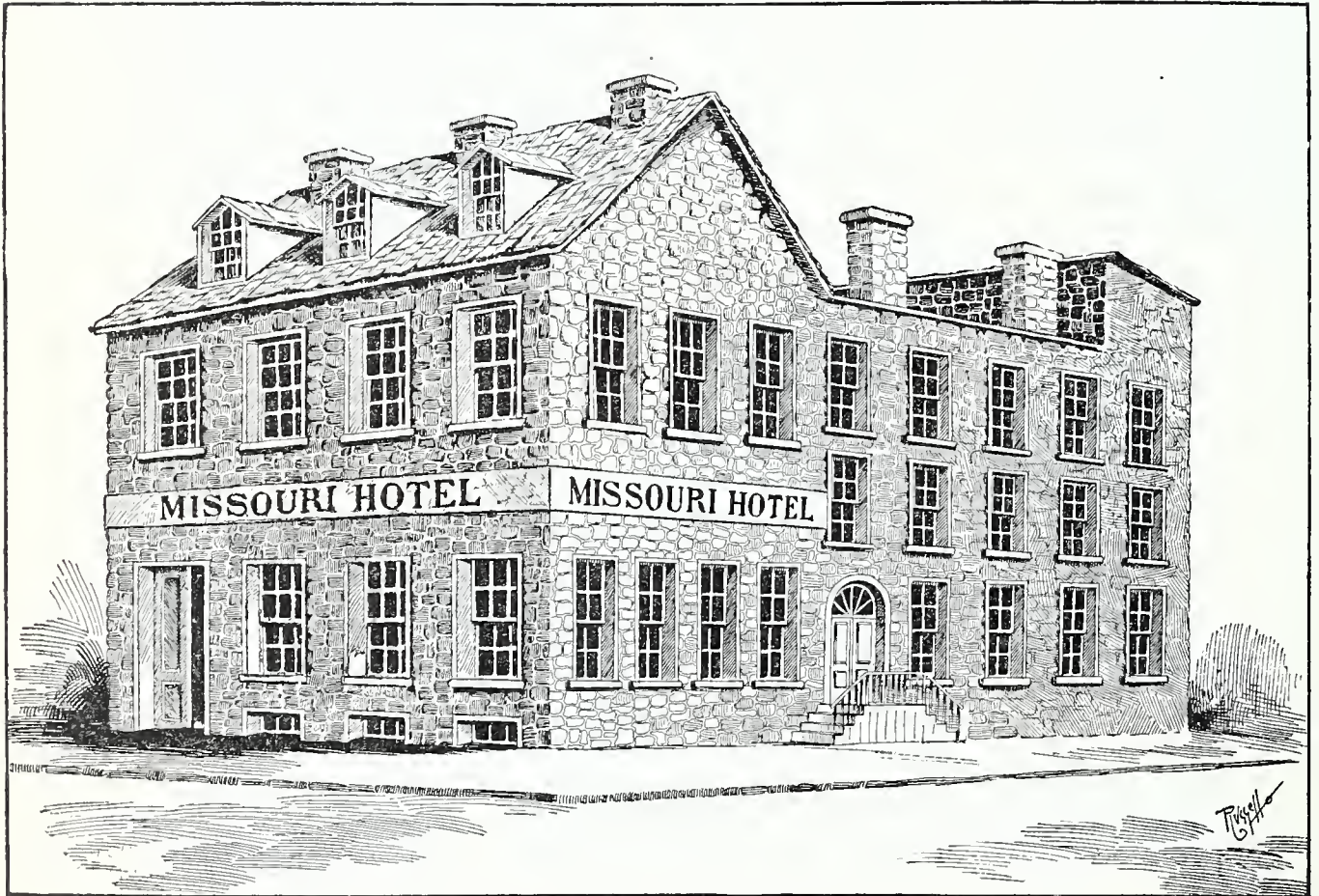
incorporated St. Louis as a city, and vested its corporate powers in a mayor and nine aldermen, Dr. Wm. Carr Lane being the first mayor. The new government at once employed an engineer to survey the city and establish a plan for grades. A number of streets were graded and improved, the grading being done at public expense, and the paving and curbing at the cost of the adjoining property holders. This division of expense had prevailed in St. Louis through the whole of its marvelous growth, until the spring of the current year, when the State Legislature passed a law placing the entire expense on the frontage holders. The city prospered under its new government, and its population steadily increased, more than doubling itself in three or four years.

trans-continental road was in course of construction. Much good work resulted and the deliberations of the convention are of special interest, in view of the fact that few States in the Union are now better accommodated with railroads, while no cities excel St. Louis and Kansas City as railroad centers.

The river traffic at the same time began to assume great proportions. In 1832, there were only eighty-six steamers engaged on the river, or rather the portion of it passing along Missouri; in 1836, the number of steamers had increased to 144, and the tonnage had almost doubled. Even at this early period the necessity for improving the Mississippi river and making it navigable at all seasons of the year was appreciated. Meetings were called, and pressure brought to bear upon the Federal Government, with

results the influence of which is still felt. In 1837, an act was passed authorizing the building of the Capitol at Jefferson City, and at about the same time the first public schools in the State opened their doors. In 1841, the State Legislature passed an act extending the city limits of St. Louis, and in the same year was opened the Planter's House, a hotel which soon acquired a reputation extending over the

degrees on its students. St. Louis had now become a city of great importance. During the year 1840, there were 1,721 steamboat arrivals, and commercial statistics show that the manufacture of flour doubled itself year after year. The entire State grew in like proportion, manufactures were attracted to it and the business of exporting became general.



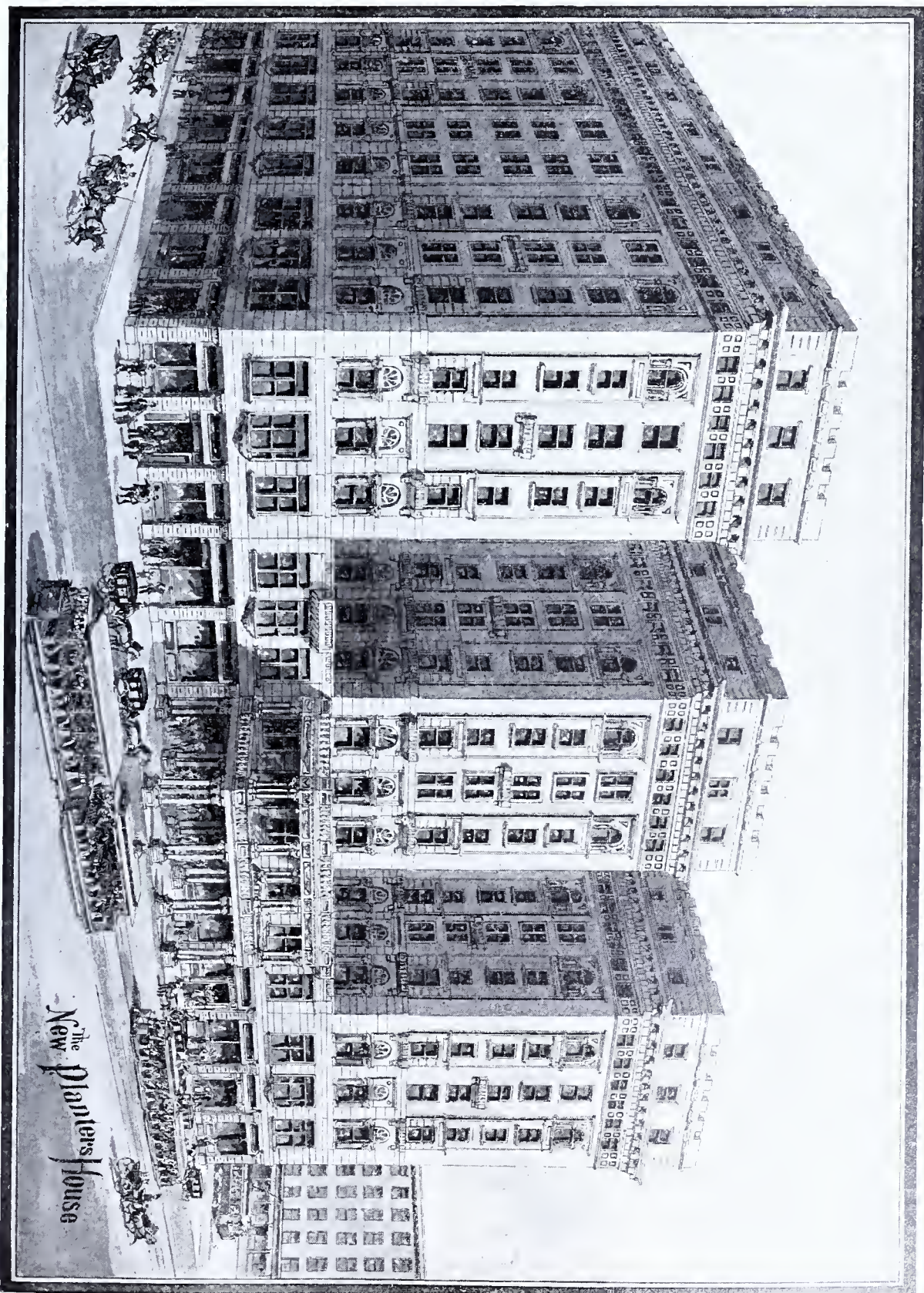
MISSOURI HOTEL, ST. LOUIS, 1820.

entire South and West. It was regarded at the time as one of the most important and largest hotels in the West, and it did duty for many years, although it has now been torn down to make room for a twelve-story fire-proof structure, which is now in course of erection at a cost of some \$2,000,000.

Also in 1841, the Legislature established the Court of Common Pleas in St. Louis, and in the same year the St. Louis Medical School commenced conferring

An interesting record is given in Shepard's Early History of St. Louis and Missouri, of the prices which prevailed in March, 1842. Flour was then from \$3.75 to \$4.25 a barrel; Wheat, 55 to 60 cents a bushel; corn, 20 to 22 cents; whisky, 17 cents per gallon; bacon shoulders, \$1.50 per cwt.; hams, \$2.50, and sides, \$3.00 per cwt.; lard, 5 to 5½ cents per pound; lead, \$2.62½ to \$2.68 per cwt.; G. A. salt, \$1.75 per sack, and L. B. salt, \$2.25 per sack.





NEW PLANTERS HOUSE HOTEL, ST. LOUIS—1893.

MISSOURI IN 1893.

PASSING abruptly from the Missouri of the past to the Missouri of the present, it may be stated that the population is now nearly three millions. In 1880, the census return showed 2,168,380 people residing in the State, and the census of 1890 stated the figures at 2,679,184, showing an increase of a little over half a million, or well-nigh twenty-five per cent, during the ten years. Nearly three years have elapsed since the last census was taken, and the increase during that period has been nearly, if not quite, 400,000. The growth during the eighties was scattered over the entire State, and of the one hundred and fifteen counties into which it is divided there was a satisfactory increase of one hundred and five. The largest percentage of increase was one hundred and fifty-eight in Shannon county, while in both Howell and Carter counties, the population more than doubled during the decade. In twelve other counties there was an increase of over fifty per cent.

The census showed that there were in Missouri twenty-nine cities with upwards of 4,000 inhabitants. The largest city is, of course, St. Louis, whose population was returned in 1890 at 451,770, an increase of 101,000 in ten years. A directory canvass taken this spring shows the population to be about 570,000 at the present time. The population of Kansas City, including suburbs not under the municipal government, was returned at 132,000, as against 55,000 ten years previously. St. Joseph was returned at 52,000, as against 32,000 in 1880, and the fourth city in order of population, Springfield, was found to have 21,800 inhabitants, as compared with 6,500, in 1880, showing the splendid increase of two hundred and thirty-five per cent in ten years. Nevada City showed even a higher percentage of increase, its population having grown in the decade from 1,900 to 7,200. Webb City, in the great mining region, also scored an increase of two hundred and seventeen per cent during the ten years.

These figures, taken from Census Bulletin No. 119, issued by the United States Government, show that during the eighties the growth of Missouri and of its cities was remarkable, and the general returns of commerce and shipping indicate that the growth in prosperity was quite as remarkable as in population. During the year 1891, the last year complete returns of which are available, the value of the surplus commodities shipped from various railroad depots and river landings in Missouri exceeded \$125,000,000. The value of lead and zinc shipped out during the year was \$4,740,000. The corn and oats shipped in the same period was worth about

\$80,000 less, and the value of the poultry, butter and eggs despatched during the year was about identical with the invoice figures of the corn and oats. The coal and iron shipments call for nearly \$4,000,000, and the value of the sewer pipe, brick and tile sent out was about two and a quarter millions. No less than 66,000 horses and mules, 190,000 sheep, 2,000,000 hogs and 629,000 head of cattle were shipped out during the year mentioned, while, during the same period, 170,000,000 eggs and 28,000,000 pounds of poultry were expressed to various points by the thrifty wives of the prosperous Missouri farmers. These returns were ascertained by adding the total shipments in every railroad depot in the State. There are seven counties through which railroads do not run, and hence the figures are under stated by from five to ten per cent.

There is something magnificent in the contemplation of the State which can ship out produce in this wholesale manner in a single year, and the following summary, giving in detail the totals with a number of counties from which shipments were made, shows how extensive and general are the industries, and what a grand opportunity is offered to immigrants in almost every line of agriculture and manufacture.

Counties.

105.....Cattle, head.....	629,438
105.....Hogs, head.....	2,006,444
88.....Horses and Mules, head.....	65,927
90.....Sheep, head.....	190,631
87.....Mixed Live Stock, cars.....	5,415
101.....Wheat, bushels.....	21,635,458
92.....Corn, bushels.....	9,652,938
76.....Oats, bushels.....	5,152,701
67.....Hay, cars.....	8,284
53.....Mixed Grain, cars.....	1,617
62.....Flour, barrels.....	2,295,746
19.....Shipstuff, cars.....	1,155
69.....Apples, barrels.....	544,914
104.....Poultry, pounds.....	28,049,177
95.....Butter, pounds.....	2,949,537
105.....Eggs, dozen.....	14,090,426
86.....Small Fruit, baskets and crates..	264,720
51.....Wood, cords.....	119,873
52.....Lumber, cars.....	34,445
22.....Hoops, cars.....	2,152
47.....Ties, cars.....	1,314,806
40.....Wool, pounds.....	3,135,685
7.....Timothy Seed, bushels.....	35,770
15.....Game, pounds.....	321,007
4.....Fish, pounds.....	88,625
26.....Hides, pounds.....	1,689,994
3.....Seed, cars.....	72
17.....Stone, cars.....	7,250
13.....Lime, barrels.....	921,407
6.....Cheese, pounds.....	160,576
14.....Dried Fruit, pounds.....	1,564,162
2.....Furs, pounds.....	2,611
6.....Meat, pounds.....	402,643
5.....Rye, bushels.....	30,156

Counties.

6.....Potatoes, barrels.....	13,743
4.....Sewer Pipe and Tile, cars.....	5,387
13.....Brick, cars.....	16,482
3.....Ice, cars.....	1,408
20.....Coal, tons.....	2,655,882
17.....Flax, cars.....	832
3.....Onions, bushels.....	89,481
3.....Tobacco, cars.....	178
3.....Canned Goods, cars.....	46
15.....Lead and Zinc, tons.....	144,540
7.....Iron, tons.....	123,571
12.....Cotton, bales.....	29,652
4.....Cotton Seed Products, pounds.....	23,763,133
2.....Melons, cars.....	1,761
103.....Other Shipments, cars.....	46,779

The figures and summary were ascertained and compiled by Mr. Willard C. Hall, while labor commissioner of Missouri, and are included in his annual report for the year 1891, which can be obtained through the mails by applying to the Secretary of State, Jefferson City, Mo.

The area of the State which produced such a wealth of good things in a single year is 65,350 square miles, or 41,824,000 acres. It is the eighth State in area in the Union, and, with a single exception, is the largest State bordering upon or east of the Mississippi river. Its greatest length from north to south is 282 miles, with a maximum width from east to west of 340 miles, and an average width of 235 miles. It is contiguous to the prosperous States of Iowa, Illinois, Kentucky, Tennessee, Arkansas, Nebraska and Kansas, and, in the extreme southwest, to a region of extreme fertility, the title to which has just been purchased by the United States Government in order that it could be thrown open for settlement. Missouri is practically the center of the great valley of the Mississippi, which includes the States of Louisiana, Mississippi, Tennessee, Arkansas, Kentucky, West Virginia, Ohio, Indiana, Illinois, Wisconsin, Iowa, Nebraska and Kansas, in addition to Missouri and portions of three or four other States and Territories. No valley in either the Old or the New World can compare with this for fertility of its soil or profusion of natural resources. It is one of the best watered sections on earth, being traversed by the Mississippi for 2,800 miles, and by the Missouri for an equal distance. Among its other rivers are the Ohio, the Arkansas, and the Red River, and altogether it contains a mileage of navigable rivers of upwards of 12,000. It is only necessary to compare these figures with those of the valleys of the Nile, the Danube or the Amazon, to realize the immense advantages of the great Mississippi valley in the way of rivers alone. In railroad transportation facilities it is even better off, but these are rather the work of man than natural advantages, and it is on the latter only that stress is laid in this chapter.

All have read of lands flowing with milk and honey, and of ground which seems to demand cultivation and to give out hourly promise of aiding and abetting the work of man. But few have been privileged to see soil so admirably adapted to farming as that to be found throughout the Mississippi valley generally, and more particularly in the grand State

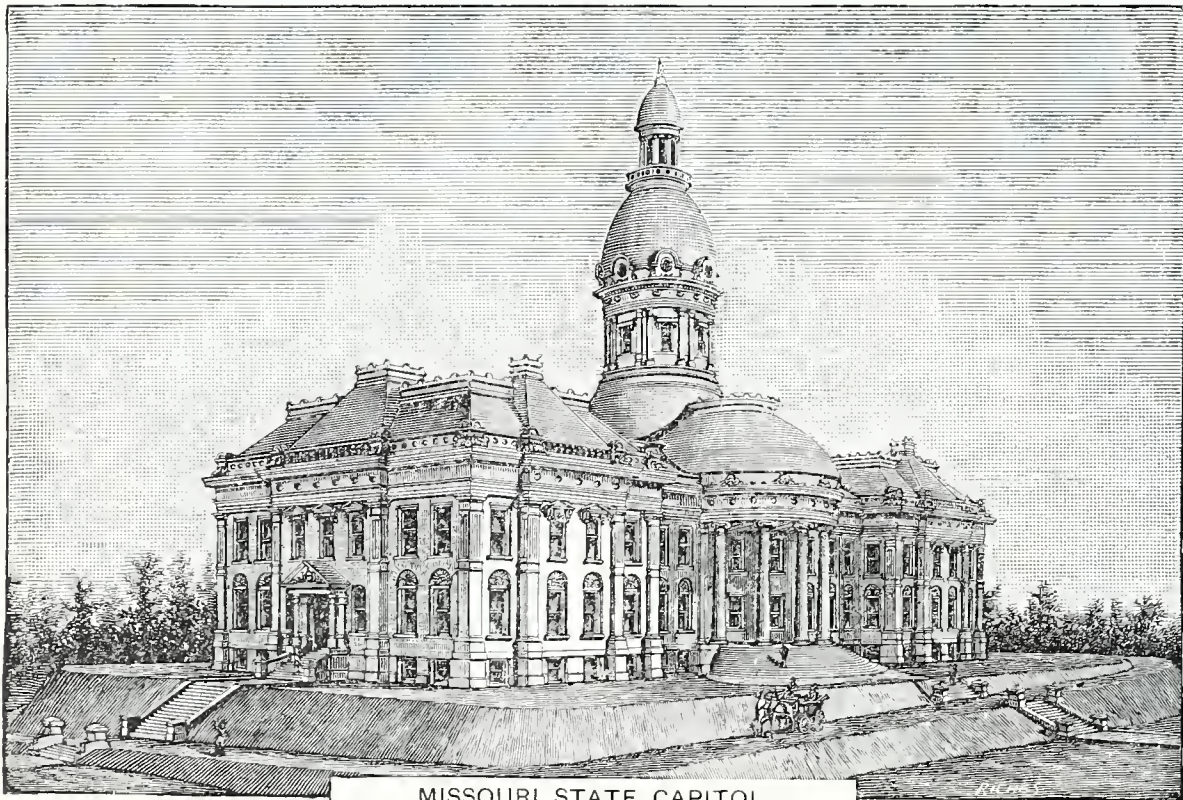
of Missouri. Physically speaking, there is great variety. The blue grass prairies of the State are unequaled, or at least unexcelled, while its mountains and timbered land are the admiration of the artist, as well as the delight of the more prosaic and less æsthetic business man. Minerals of the most valuable character are to be found in certain sections, while in others the soil is so abnormally fertile as to present opportunities of money-making fully equal to those possessed by the man who digs below the surface in search of the wherewithal to coin what the love of which, we are told, is the root of all evil. The Mississippi itself forms the eastern boundary of the State, and is now being improved by the Government so as to make it a navigable river even north of the point where it leaves the State which loves it so well. The river channel is being deepened, and in a short space of time it will be possible for ocean steamers to sail up as far north as St. Louis. Even now a special vessel is being constructed to navigate the river and connect with Mexican and South American points, and the time will shortly come when the Mississippi will be the means of connecting the river cities of Missouri with the trading ports of the civilized world everywhere.

From a health standpoint, Missouri is all that could be desired by the most exacting or fastidious. "The valley of the Mississippi," wrote De Tocqueville many years ago, "is upon the whole the most magnificent dwelling place prepared by God for man's abode." This is as true to-day as when the words were first written, and they apply with the greatest possible force to Missouri, where not only is the soil fertile and underlaid by minerals of the most valuable character, but where the climate is excellent, and where violent extremes of heat and cold, cyclones, and other drawbacks to health and happiness are comparatively unknown. The winters are short, and zero temperature is seldom recorded. In some instances winters have been so mild as to enable plowing to be done almost any time, and, although this is exceptional, it is still more exceptional for a farmer to be delayed by late winters than unseasonable frosts. Very deep snow is unusual, and the average depth of snowfalls is about two and one-third inches. Spring is both warm and early. Peach trees bloom the last of March or the first of April, and long before May sets in, nature has clothed itself with as lovely a dress of green as could be either imagined or desired. Sufficient heat can always be relied upon to mature the crops, but the temperature is seldom high enough to be dangerous to health or to make sunstrokes probable. The most delightful period of the year is the fall or autumn, which commences at the end of August and continues to November, and sometimes even to the middle of that month. The weather during about one hundred days at this period of the year presents a delightful medium between heat and cold, with all the luxurious delights of a typical Indian Summer, and when winter sets in, it generally does so gradually and without any violent fall of temperature.

The mean annual temperature is about 55°, ranging in different years from about 53° to 58°. The mean temperature, for what is regarded as a severe winter, is about 26°, which is practically the minimum recorded, while the number of winters in which the mean temperature has been as high as 38° and 40° is very large. The winter average may be stated at about 33°, and the summer average at about 76°, the latter varying from about 72° to about 80°. Rapid changes in temperature are not frequent. The daily change seldom exceeds 20°, except when the wind is exceptionally high, when variations of 30° or 35° may sometimes be looked for.

As already mentioned, Missouri is well watered. In addition to its wealth of rivers, it has abundance of springs, some of which yield drinking water as pure and clear as crystal, while others yield water of

reminders of the warmer countries around the Gulf of Mexico and towards the Equator. If it be true that happy is the bride that the sun shines on, Missouri brides almost invariably have a sunshiny wedding day upon which to look back as a harbinger of good things. Careful records show that throughout the entire spring, summer and autumn, scarcely a day passes without at least a spell of sunshine, and, even in winter, three successive days seldom pass without a break in the clouds. The records indicate that occasionally there is an entire week during which the sun's rays are powerless to penetrate the clouds; but many winters pass without any such protracted period of gloom, and the general brightness, as well as the pleasantness of the climate, is reflected on the disposition and habits of the people who have made their homes in this favored State. Health



MISSOURI STATE CAPITOL.

high medicinal power, which have effected cures bordering upon the miraculous. Drouths are seldom known in Missouri; indeed, the rainfall is somewhat high for so temperate a climate. The average annual rainfall at St. Louis, where the meteorological records are very complete, is about forty-one inches, ranging in different years from twenty-five to fifty-five. The winter rainfall is generally about seven inches and the summer rainfall about thirteen. The heaviest rainfall is, however, at a time when moisture is most needed by the crops, what may be called the Missouri rainy season, commencing in April and ending in July. South and southeast winds are common, and it is to these that the State owes, in a large measure, its equable climate. On hot summer days the southern breeze brings comfort and relief, while in winter the same wind brings with it pleasing

statistics also speak volumes for the climate and other conditions favorable to the human race. In the large cities a death rate of twenty is regarded as high and throughout the entire State epidemics of any kind are very few and short-lived. The proverbial oldest inhabitant is to be found in every county and well-nigh every township, for Missouri men and women are long-lived, many attaining to quite a patriarchal age.

These are a few of the reasons why the home-seeker can make no mistake by locating in Missouri. Ex-Governor Farwell, of Wisconsin, who left that State and settled in Missouri, stated his reasons for so doing so graphically, that a portion of the answer he made to an inquiry of why he changed his location is appended:

"I came to Missouri to secure, as far as possible, the benefits of an equable climate, a field of diversified industries, and of certain mental, moral and material advancement, which, from the very nature of things, could know no pause. I sought a location where the cold or winter season was of three and not of six months' duration, and where from the contour of the surface, needful altitude could be selected to overcome any imaginary danger to health from change of latitude—indeed, where North and South could meet on common equality.

"Where the earth teems with plenty, there is little cause for consuming anxiety. Neither wintry blizzard nor summer cyclone are here to molest or make us afraid.

"The State of Missouri occupies an exceptional position in certain respects, even when compared with others in the same zone. Generally it may be considered in itself as a valley, the channel of its great river marking the center line of its greatest depression. The soil of its bottom lands is the product of all the Territories east of the Rocky mountains, and this is largely true of its upland. Northern snows seldom penetrate below the central line of division. It lies south of the snow line, and north of the dry, hot-air regions that reach to the Gulf of Mexico; a zone of precipitation generally quite stable when years are compared together. Crops are neither winter-killed, nor do they perish of drouth or of excess of moisture; all forms of agriculture thrive, and a growing diversity is annually visible. Fruit culture scarce has limit to its range of varieties. The grasses insure successful stock-raising to an unlimited extent. Winters are short, usually without great extremes of temperature. Summers being without excessive heats; in which respect the climate widely differs from regions further north. Nor is the climate of Missouri enervating, but agrees with newcomers, whether from the North or South.

"In minerals, Missouri is the equal of any State in the Union, and the most favored portions of

Europe. The time is near at hand, when its manufactures, in extent and variety, will be equal to those of the Eastern States. Generally, every condition for diversified industries is completely developed. In a commercial sense it is the gateway of the plains and mountains, as it is the midway of the continent; a local point toward which all great public enterprises tend, and from which they radiate. That it is to become and continue the very seat and center of intellectual activity and refinement is manifest from surrounding conditions.

"For years I have seen scores of thousands of people induced to locate on the cold, naked and treeless plains of the North, where winter temperature often reaches 50° below zero, and which scarce enjoys four months of yearly warmth, all because no organized effort is or has been made to direct them to a country in every sense more inviting. Think once of Manitoba and Dakota as a winter home compared with the mild climate of Missouri. It is as the iceberg to the summer sunshine.

"The people of Missouri have been wonderfully blessed. Never imperiled or distressed by famine; capital and labor always in demand; a country underlaid with coal, iron, lead, and other minerals and metals, sufficient to supply the country's demand for all time to come.

"No better evidence can be given of the great advantage of settlement here than that the large portion of the present population had once resided west of the Missouri river, sold out and returned to a State which they had at first merely passed through. This is the substance of my experience; if, of the multitudes of personal acquaintances elsewhere, we shall induce some of them to follow, I think they will agree that Missouri embodies in itself more advantages of all kinds, in whichever light the subject is considered, than any Western State. I have repeatedly visited nearly all and balanced advantages and disadvantages against each other."



The Work of the World's Fair Commission.

THE State of Missouri was among the first to recognize the importance of the World's Fair and the duty of the State to secure an adequate representation of its resources and greatness at what it recognized from the first would be the grandest gathering of representative exhibits from all parts of the world ever attempted. The State Legislature appropriated \$150,000 for this purpose, and passed an act creating a World's Fair Commission for the State. Gov. Francis appointed Mr. N. H. Gentry, of Sedalia; Mr. Nathan Frank, who had represented one of the St. Louis Districts in Congress; Dr. E. McD. Coffey, of Platte City; Mr. Charles W. Green, of Brookfield; Mr. Hugh J. McGowan, of Kansas City; Mr. H. H. Gregg, of Joplin, and Mr. Wm. Dawson, of New Madrid, members of the Commission. Each of these gentlemen represented an important industry or interest of the State, such as live stock, manufacturing, agriculture, forestry, horticulture and mines and minerals. Mr. N. H. Gentry was appointed President; Mr. Nathan Frank, Vice-President; Dr. Coffey, Treasurer, and Mr. Green, Secretary, and the Commission proceeded at once to organize to business. It has continued its labors in the interests of Missouri and the exhibit up to the present date with but very slight changes in its organization. Owing to pressure of business engagements, Mr. Green resigned the Secretaryship early in 1893, but retained his seat on the Commission. He was succeeded by Mr. Wm. Dawson. Mr. Gregg resigned his seat on the Commission this spring.

One of the first acts of the Commission was the selection of an Executive Commissioner, and the choice of the Board fell upon Mr. Joseph K. Gwynn, whose knowledge of every section of the State made him well qualified for the position, and whose good work as Secretary of the Southwestern Immigration Society stamped him as a loyal Missourian and a man of untiring energy and activity. The selection has proved a most fortunate one. Prof. Gwynn has left no stone unturned in his efforts to secure for Missouri a first-class representation, and, fortified and reinforced by the confidence of the entire Commission, he has succeeded beyond expectation in bringing to the front the grand intrinsic advantages of the great State of Missouri.

From the first the Commission found an absolute unanimity of sentiment in regard to the importance of the Fair and the duty of citizens to co-operate in making the Missouri displays a success. The City of St. Louis, through its Autumnal Festivities Association provided office accommodation without cost to

the Commission for its Executive Commissioner, and the Bureau of Information, one of the committees of the Festivities Association, has rendered clerical and other assistance to the Commissioner during the entire work of preparation for the Fair. Kansas City also provided an office for the Secretary of the Commission and furnished it in a most handsome manner, rendering every possible assistance to the Secretary and staff. This office was used until the retirement of Secretary Green, when his successor located in St. Louis where he is carrying on the office formerly occupied by the Executive Commissioner.

The work of collecting exhibits representative of the countless interests of so large a State as Missouri has been a difficult task, although a labor of love. The Commission has met in various cities and received delegations representing an immense number of interests. As a result, it is now placing before the people of the United States, as well as of representative delegations from every civilized nation in the world, an exhibit, or rather a series of exhibits, of which every Missourian is compelled to be proud. The Missouri State Building will be found to be among the most handsome of the many magnificent State Buildings at the Fair, and it will be visited by hundreds of thousands of visitors who are either interested directly or indirectly in the State, or who have heard of its greatness and are desirous of seeing for themselves the records of its achievements.

Among the exhibits made by the State, the one which is likely to create most surprise, if not admiration, is that in the Mines and Mining Building. It will be noted that the Missouri exhibit in this building is in one of the four prominent corners formed by the intersection of the two main aisles. Elsewhere in this work will be found a comprehensive outline of the mineral wealth of Missouri from the pen of the State Geologist, and a perusal of Prof. Winslow's article will prove of great assistance to those who carefully study the great mining exhibit of Missouri. It is no exaggeration to state that those counties which make a specialty of mining have been traversed from end to end in search of representative specimens, and any who have not been aware of the fact that Missouri is one of the first mining States in the country will have their eyes opened considerably. As has already been mentioned, the Missouri Mining exhibit occupies one of the four most prominent corners in the Mines and Mining Building. The other three corners have been allotted to Great Britain, Germany and Michigan,

and Missourians will observe with delight that their State more than holds its own in this distinguished company.

To those at all acquainted with the fertility of Missouri soil, and of its enormous production in all branches of agriculture, it will not be a surprise to note that Missouri has more space in the agricultural building than any other State in the Union. The agricultural exhibit, it will be noticed, is a thing of beauty, as well as a spectacle of grandeur. The area of the exhibit is 3,240 square feet, and this has been arranged so beautifully that it forms in itself quite a grand exposition. On either side of the main entrance are cases with specimens of Missouri's choicest grasses, with selections of wheat, straw, rye, oats, barley and other grains close by. The tobacco exhibit includes a leaf of each variety of tobacco grown in the State. The miniature Eads Bridge, erected entirely out of Missouri agricultural products, is well deserving a visit. Corn of every description is used in this, and also in the corn palace, and in this exhibit will also be found one of the most appropriate statues in the entire Fair. The number of varieties of wheat in the exhibit will be found to exceed one hundred and thirty, with nearly as many specimens of grass. It will not take long to make the visitor realize that, if there is a greater State in the Union than Missouri for agricultural purposes of all kinds, the fact is not apparent.

The horticultural department is made up of some of the choicest productions of the world-renowned gardens and orchards of Missouri. One thousand glass jars of artistic design, ranging in height from six to thirty-six inches, and in diameter from one and a half to nine inches, contain specimens of strawberries, raspberries, cherries, peaches, gooseberries, apricots, nectarines, quinces, pears, grapes, and countless vegetables. As the Fair opened before the crops of 1893 ripened, it was necessary to preserve specimens of the crop of 1892, and this was done by aid of antiseptic fluid in a very successful manner. In no department has the Commission been so thoroughly co-operated with, and in none has a grander or more representative exhibit been made. In addition to the horticultural display in its own building, some exceptionally grand specimens of Missouri plants will be seen at the State building, including a colossal cocoa palm from Shaw's Garden at St. Louis.

Upwards of two thousand plants of Missouri growth will be found represented in the herbarium exhibit to which the nurserymen of the State have contributed very freely.

The forestry exhibit has given much anxiety in its preparation and presentation. Missouri occupying such a great position among the States as a timber producer, it was necessary to procure massive as well as costly specimens, and a visit to this department will lend much enlightenment as to the actual productions of the State.

Passing from the inanimate to the living specimens sent by Missouri to uphold its reputation at the Columbian Exposition, it may be noted that the Commission has set aside adequate sums of money for premiums in the various live stock departments. The specimens of cattle and horses of every description will be a source of interest to every visitor, and it will be seen that in blooded stock the grand old State can easily hold its own against competitors from all parts of the world. The poultry exhibit will be found to be also complete, and the fish exhibit will remind disciples of Izaak Walton that, when they desire to rest from their daily labors and enjoy a few days fishing under the most delightful conditions, they have only to direct their steps in the direction of Missouri to satisfy that craving which the fisherman is said to encounter at certain periods of the year.

This is, of course, but a general review of the most important work done by the Commission, and must not be looked upon as a full outline or schedule. The Commission is indebted to a very large number of Missouri citizens for the success of the exhibits in the various departments, and among these may be mentioned ex-Governor Francis, Governor Stone, the State Geologist, the State Superintendent of Public Instruction, the present and late Labor Commissioners; Dr. Edw. D. Porter, Dean of Agricultural College and Director of the National Agricultural Experiment Station for the State of Missouri; Mr. Wm. Bouche, the well-known landscape gardener, whose work at European and American expositions in the past has made his name famous; Prof. Johnson, of Washington University, St. Louis; Dr. E. O. Hovey, Prof. of Mineralogy and Petrography; Mr. Frank Dixon, of Kansas City; Prof. Long, of the St. Louis Board of Education; Mr. J. D. Wyant; Mr. W. W. Ellis, of the Bird and Fish Protective Association of Missouri; Mr. Levy Chubbuck, ex-Secretary of the State Board of Agriculture; Mr. J. C. Evans, President of the State Horticultural Society; Mr. Chas. A. Keffer, Professor of Horticulture at the University of Missouri; Mr. Powell Jackson, of St. Louis; Mr. James A. Reeves, the celebrated lead and zinc specialist; Mr. W. R. Dodson, Assistant Professor in the Department of Biology of the State University; Rev. James Gallaher; Mr. Louis Houck, of Cape Girardeau; Mr. John McDiarmid, editor of the *Live Stock Indicator*, Kansas City; Mr. J. D. White, of Grandin, Mo.; Mr. A. B. Martindale, of Williamsville; Mr. G. P. Morton, President Missouri Bee Keepers' Association; Mr. Frank Gaiennie, General Manager of the St. Louis Exposition; Mr. G. W. Fry, of Walnut Hill, President of the Missouri State Poultry Association; Mr. Goodman King, Chairman of the St. Louis Festivities Bureau of Information, and other gentlemen too numerous to mention in detail, but whose services have not been less valuable or generous.

The Geology and Mineral Products of Missouri.

BY

ARTHUR WINSLOW, STATE GEOLOGIST.

THE State of Missouri is located in the central portion of the United States, in that region known as the Mississippi valley. It is bounded on the east by the Mississippi river, on the south by the lines 36° and $36^{\circ} 30'$ of north latitude, and on the west by the meridian which passes through the mouth of the Kansas river at latitude $39^{\circ} 7'$, and longitude $94^{\circ} 37'$. Thence the boundary line follows the Missouri river in a northwesterly direction to a point at about latitude $40^{\circ} 34\frac{2}{3}'$, longitude $95\frac{3}{4}^{\circ}$. This is the northwestern corner of the State, and thence the northern boundary line extends eastwards approximately along the line of same latitude to the Des Moines river, which it intersects at longitude $91\frac{3}{4}^{\circ}$, about 25 miles above the mouth of that stream. The area of the State, according to the figures of the eleventh census of the United States, is 69,415 square miles.

PHYSIOGRAPHY.

Generally speaking, the whole State is an incised plain; no great mountain ranges traverse it. The maximum difference of absolute elevation within the whole area is only 1,500 feet; the local and relative differences are still less, and do not exceed 700 feet. More closely speaking, the following four topographic divisions may be recognized: (1.) A plain or prairie country. (2.) A plateau country. (3.) A highland or semi-mountainous country. (4.) An alluvial or swamp country.

(1.) THE PRAIRIE COUNTRY.—The prairie country of the State is principally represented in the northern portion, and in that part north of the Missouri river; it also occupies, however, nearly all of the two tiers of counties south of that stream which extend along the Kansas line. Adjacent to the Missouri river and to other large streams this country loses its prairie features and is rugged and characterized by steep, timbered slopes and bluffs adjacent to and bordering the flood plains of these streams. Away from the channels, however, the country assumes the character of a broad plain, sometimes flat, but generally undulating. In fact the local differences of elevation often amount to 100 feet or more, but the slopes are so gentle that the country does not lose the aspect of a plain. The growth of trees is here not abundant, excepting along the streams. It must, however, be

understood that, though a comparatively level and treeless country, it is of a very different type from the great flat plains of Western Kansas.

(2.) THE PLATEAU COUNTRY.—The plateau country of the State occupies the central southern part, south of the Missouri river. This is the area known as the Ozark Mountains, and is essentially a dome-shaped uplift, with very gentle quaquaversal slopes. It differs from the prairie country chiefly in its greater relative altitude, and in that it is not covered by a protecting and modifying coat of glacial material. As a result the land is more pronouncedly sculptured. The valleys are cut deeper, and the slopes are more abrupt; the area is made up of a series of long ridges and hills, divided by deep narrow valleys, often of cañon-like dimensions. Timber is abundant, but, on the other hand, the land is generally less fertile than that of the northern portion of the State. Near the crest of the Ozarks the type of topography is not nearly so pronounced, and we have here quite a large expanse of undulating country; thence, in all directions, however, the streams cut deeper and deeper, and the profile becomes more serrated.

(3.) THE HIGHLAND COUNTRY.—What we term for convenience the highland or semi-mountainous country, lies in Southeastern Missouri, and includes what we have named the St. Francois mountains. These are a series of knobs and domes of Archean porphyry and granite which rise to altitudes of from 1,700 to 1,800 feet, A. T., and some 700 feet above the surrounding valleys. The whole area covered by these mountains is not over 1,000 square miles. These are distinguished from the Ozark mountains, so called, in form, structure and age. They are among the oldest elevations in America. They are not arranged by groups and ranges, but their distribution seems to be quite adventitious. The country is decidedly a timbered one, but a large part of the timber has been removed for railway and furnace uses. The valleys are underlain by Cambrian limestone, and are generally cultivated.

(4.) THE ALLUVIAL COUNTRY.—The alluvial or swamp country occupies the extreme southeastern corner of the State; it is the alluvial or flood plain of the Mississippi river and its tributaries. It is almost entirely a low-lying and flat expanse, though in the western part it is traversed by a long, low ridge of

Tertiary sands and clays. This area is in large part subject to overflow, though portions are not reached by any ordinary floods. It is mostly heavily timbered, especially in the swampy portion, and large amounts of lumber are shipped out annually. It also contains great tracts of prairie and cleared country of extreme fertility, and many flourishing towns and settlements have been built up within its borders.

GEOLOGY.

Nine geologic formations or systems, representing so many periods of geologic time are found in the State. These are, beginning with the oldest, the Archean, Algonkian, Cambrian, Silurian, Devonian, Carboniferous, Tertiary and Pleistocene.

THE ARCHEAN.—The rocks of Archean age in Missouri consist chiefly of granites and porphyries or felsites. They occur exclusively in the southeastern part and constitute the hills described on the preceding page as the St. Francois mountains. The porphyries are of varying color, from light gray, pink, red and brown to almost black. They are generally massive, but frequently brecciated, and are sometimes banded, with the flow structure well developed. The texture varies from the vitrophyric to the microgranitic. The most important ores occurring in these rocks are the specular iron ores of Iron mountain. The granites are irregularly distributed over the Archean area. They are intimately associated with the porphyries and seem to grade into the latter in places; elsewhere they are extremely coarse, and, in some instances, the quartz and feldspar are in masses six and eight inches across. They are of gray, pink and red colors. Some black mica is found as an accessory mineral. About the only ore of economic value found in these rocks is the silver-bearing galenite of the Einstein mines, in Madison county.

THE ALGONKIAN.—The Algonkian rocks are represented at only a few localities in the vicinity of Ironton, associated with Archean rocks. The most noteworthy and extensive exhibit is on the summit of Pilot Knob. Here the formation is represented by beds of conglomerate or breccia and of felsitic appearing slate. A bed of specular ore, some 30 feet in maximum thickness, constitutes one of the members of the series here. The fragments of the breccia consist of porphyry and, though sometimes rounded, are generally sub-angular. The matrix of the conglomerate and the material of the slates is also felsitic and the texture is similar to that of the porphyry. The slate is fissile and cleavable in places, but is elsewhere massive. It is, in large part, highly ferruginous. The bed of iron ore is near the bottom of this series of rocks and is of elliptical outline and changes in character towards the margin by lessening in iron contents or "leaning out" as the miner expresses it. These Algonkian beds probably began forming immediately after the Archean rocks were consolidated. They must have originally spread over a wide area. Denudation before or during early

Cambrian times has left only a few remnants. The maximum thickness now to be seen is under 200 feet. The presence of these beds and the fact that only these remnants should be left is significant of the vast interval of time that must have elapsed between the Archean and Cambrian periods.

THE CAMBRIAN.—The Cambrian system is represented in Missouri by a succession of beds of magnesian limestone and sandstone. These occupy the southern-central and southeastern portions of the State, and are particularly well developed in the Ozark mountains. In the St. Francois mountain region beds of conglomerate are found at the base of the formation consisting largely of porphyry, granite boulders and pebbles derived from the Archean hills. As the results of recent work, three main divisions of this system are provisionally recognized. These are, from the bottom upwards, as follows: (1) The La Motte sandstone, to which horizon the conglomerate above referred to may be assigned. (2) The Gasconade limestone. (3) The Roubidoux sandstone. This last is probably equivalent to the old "Saccharoidal" sandstone. The exact upper limit of this system is not yet defined; but, probably, it will be drawn below what has been called the First magnesian limestone. The maximum thickness of the whole system is about 800 feet. The strata of this formation are comparatively undisturbed. They are largely represented in the dome-shaped arch already referred to, known as the Ozark Uplift. Minor gentle flexures traverse this arch in places. The rocks have been eroded both by surface and subterranean waters, and, hence, local settling of the strata is quite frequent. This might lead to the idea that great flexing had taken place in places; but such is not the case. The principal mineral product of economic value in these rocks are the lead ores of Southeastern Missouri and the iron ores of the central and southern portions of the State.

THE SILURIAN.—The outcrops of rocks of Silurian age are confined almost entirely to the eastern border of the State, where they are frequently exposed from Marion to Cape Girardeau counties. No exposures of these rocks have been found in the western part of the State, and it is probable, even, that they do not occur there beneath the overlying rocks. This system is divided into an upper and a lower series, the two aggregating about 600 feet in thickness. They consist of a succession of limestones and shales of varying character. Areally the rocks of this system are not prominent in Missouri, neither do they contain minerals of great economic value.

THE CARBONIFEROUS.—The Carboniferous system is divided into two series, the lower is known as the Mississippian or Lower Carboniferous, the upper as the Pennsylvanian or Coal Measures. This formation occupies well-nigh the whole northern and western portions of the State. The Mississippian division is composed chiefly of massive beds of limestone, often crystalline and highly fossiliferous. Thick beds of chert, shale and sandstone are, however, often included, the last two especially in the lower portion.

The aggregate thickness is over 1,000 feet. This is the great lead and zinc bearing formation of South-western Missouri. Excellent building stone is also derived from the limestone beds, and they furnish the best grades of quicklime.

The rocks of the Pennsylvanian series overlies the Mississippian somewhat unconformably. A period of sub-areal erosion, over at least part of the latter formation, must have intervened. The series consists, in the lower part, of sandstones and shales, the latter partly arenaceous, with some limestone and coal. Higher up limestones and coals are more abundant, and the latter are more regular in distribution. At the top of the series, the limestones are most abundant. This is the great coal-bearing formation of the State. The strata of this series, as well as those of the preceding member of the Carboniferous, are practically horizontal with but a slight dip to the west and northwest. Local departures from this rule exist, however. The aggregate thickness of the series is in the vicinity of 2,000 feet.

THE TERTIARY.—The Tertiary rocks are confined to the narrow ridge in Southeastern Missouri referred to on page 14. This is bounded by the alluvial plains of the Mississippi river. It consists of unconsolidated beds of clay and sand and lignite, covered by a stratum of chert gravel. The exhibited thickness is in the vicinity of 100 feet. How much the beds extend beyond this we are unable to say at present.

THE PLEISTOCENE.—In the Pleistocene we include all of what are known as the glacial deposits of the State, as well as the more recent Quaternary formations represented by the residuary loams and clays which cover the ground in the uplands, and the alluvial deposits of the plains along the larger streams.

The glacial deposits cover the entire northern half of the State approximately down to the Missouri river. The materials are the usual clays, sands and boulders, which we will not attempt here to classify. Along the Missouri and Mississippi rivers are thick deposits of loess, capping the bluffs on both sides of the stream and sometimes fifty feet or more in depth. The alluvial plains along the rivers are of varying width, the maximum width on one side of the Missouri river being about eight miles. They constitute land of extreme fertility and large crops of corn and wheat are annually produced upon them.

THE MINERAL PRODUCTS.

The territory occupied by the State of Missouri has been known as a mineral producing area for nearly 200 years. Penicaut, one of Le Sueur's party, which ascended the Mississippi river in the year 1700, refers to a mine west of the Mississippi and west of Ste. Genevieve, whence the Indians got their supply of lead. This is the earliest reference which we have, and, as Carr says, it indicates with reasonable certainty the date when the French began to make use of the mineral resources of the region. Since that time the State may be considered a con-

tinuous ore producer up to the present date. Iron mining was begun about the year 1815; coal was probably discovered in the earliest explorations; we find records of its existence in 1804; in 1840, 8,903 tons were mined, and from that time the production was continuous. Zinc was mined with lead ores for many years, but it was not utilized until 1869. Since then the growth of production has been rapid.

Missouri's principal mineral products are zinc, in the production of which she ranks first in the country; lead, in which she is second only to Colorado, and iron. In addition, she is a large producer of coal, her clays have a national reputation, and she has a great variety of excellent building and ornamental stones. Among the minor products are quicklime, glass sands, copper and barytes. A large number of the more common classes of mineral waters are scattered over the State. The distribution, character and conditions of occurrence of these various materials of economic value we will now proceed to briefly describe.

ZINC.

Zinc may be considered Missouri's distinctive product. In it she ranks first among the States as a producer, and between one-third and one-half of the total zinc yield of the country comes from her mines. She thus stands as a source of supply for the whole country, and her zinc ores are even tentatively seeking the foreign market.

The zinc region of the State is the extreme southwest, and this particularly in the counties of Jasper, Newton and Lawrence. These are the centers of production, nearly eight-tenths of the annual product coming from Jasper county alone, and ninety-six one-hundredths from the three. The ore is mined on a commercial scale in seven other counties. Zinc is, however, widespread in the State and is known to occur in greater or less, but still considerable, quantities in as many as fifteen more counties.

Zinc ore is known to have been mined in the past in Washington, Wright, Christian, Howell and Webster counties, and the following table shows the amounts mined in different counties in the year 1892:

Dade.....	103 tons.
Barry.....	192 "
Green.....	899 "
Jefferson	2,075 "
Newton.....	8,343 "
Lawrence	13,861 "
Jasper	106,014 "

Total zinc ore mined during 1892.. 131,487 tons.

The ore principally mined is the sulphide of zinc, or sphalerite, commonly known as "jack," which occurs in several varieties, distinguished chiefly by color and known by the names of jack, rosin jack and black jack. It is the most abundant ore in the Jasper district. It is the most valuable of the three classes, and is now rated at about \$22 per ton. The so-called "silicate" ores are of two varieties, *i. e.*, the true silicate, or calamine, and the carbonate, or smith-

sonite, and they are difficult to distinguish by the eye. These ores are produced most abundantly about Aurora and Granby, and constitute the zinc ore of the Valle mines in the northeastern corner of St. Francois county; they are generally found near the surface in the shallower workings. They do not contain so large a proportion of zinc as does the sphalerite, which latter contains about sixty-seven per cent, while the true silicate has fifty-four per cent, and the carbonate fifty-two per cent. They, hence, bring a lower price and now sell at about \$15 per ton.

Geologically the zinc ores occur in nearly all of the Paleozoic formations of the State, but outside of the ores from the Valle mines, those mined at the present date come almost exclusively from what has been described as the Mississippian formation, or from a great series of limestones and cherts, which immediately underlie the Coal Measures, or Pennsylvanian rocks. It is not to be understood, however, that these ores are co-extensive with this series, for these same rocks abound about St. Louis, and yet they are there practically destitute of zinc. Their development in this formation, on a scale of commercial importance, seems confined to the southwestern part of the State, for some reason which we do not clearly understand, but which we are trying to find out. The ores do not occur in these rocks in sheets or beds, as does the coal in the Coal Measure rocks; if so it would be a very simple matter to successfully direct prospecting and further development. Unfortunately for the progress of mining, however, the ore is of irregular distribution, sometimes in thin sheets in crevices in the massive limestones; sometimes in great chambers; sometimes buried in clay and a mass of loose material which can be excavated by pick; sometimes disseminated through solid, brecciated rock which has to be blasted down; sometimes lining cavities with drusy crystals.

The reasons for the peculiar conditions of occurrence of these zinc ores are chiefly assignable to structural considerations, and to the nature of the country rock of the region in which they are found. We have there a series of layers of limestone, and of chert or "flint," piled upon each other, varying in thickness from a few feet to twenty and more. These have existed for a very long time, and the limestones have been subjected to the solvent action of waters percolating through them. These percolating waters have by degrees produced channels along planes of fracture, which have been developed into subterranean passages, have dissolved away whole layers of limestone, allowing the overlying insoluble chert beds to break down, and to partially fill the cavities with their fragments. The clays, so abundant in some deposits, are probably the residues of dis-

solved limestones, all of which latter have more or less clay in their make-up. In these cavities, in the residuary clays and around the broken rock fragments, the zinc ores have been deposited; brought there in solution, perhaps, by the very waters which have dissolved the limestones, possibly by waters issuing from great depths. That is, the zinc may have been originally disseminated in minute quantities throughout the surrounding limestone rock, and have been concentrated through the medium of the dissolving waters; it may have been similarly collected from overlying beds, or it may possibly have been brought to its present position from a deep source in ascending waters. This is a problem which we are still trying to solve, and which is of vital importance to the successful development of our mining industry.

Zinc mining in the State is of very recent origin. Zinc ore was taken out along with the lead ore at the Valle mines, and thrown aside on the dumps for many years, but not until 1869 did it become an article of shipment. In the southwest, zinc mining may be considered to have begun in the year 1870, when the Granby mines began to work it. With the increased use of zinc since that time for galvanizing and other purposes, the production has increased rapidly and constantly. During the past sixteen years the price of spelter in New York has varied from 7 cents per pound in 1875 to 4.34 cents in 1885, and to 5.05 cents in 1891.

Concerning the production of zinc ore in Missouri during past years, figures of any kind are difficult to obtain, and exact figures are in many cases unattainable. The table on following page is compiled from figures derived from many different sources, supplemented by estimates where figures were not attainable.

The grand total is 1,117,500 tons of ore produced up to and including the year 1890. This, at \$22 per ton, is equal to \$24,585,000.

That the zinc output of the State has reached its maximum rate, no one maintains. That the productive area is in any way exhausted of ore, there is no reason to think. On the contrary, we look for a continued discovery of fresh deposits as prospecting advances. That much of the mining of these ores in the past has been crude and wasteful is true, and it still remains so to a great extent. Improvements are, however, being introduced both in the mining and milling of the ores. These factors of success should be given more attention in the future. Professional knowledge should be applied to the problems presented, to the methods of excavating, of draining, of hoisting, of concentrating; the small, single-handed, hand-to-mouth practices of the past are enormously wasteful and should give way to large projects systematically and scientifically directed.

ZINC ORE PRODUCTION IN MISSOURI.

Year.		Tons of ore produced.
1892.....		131,500
1891.....		123,800
1890.....		100,200
1889.....		82,400
1888.....		74,600
1887.....		69,400
1886.....		58,400
1885.....		50,600
1884.....		54,000
1883.....		45,500
1882.....		43,000
1881.....		43,600
1880.....		
1876.....		
1875.....		23,500
1874.....		
1873.....		
1872.....		6,000
1871.....		5,000
1870.....		4,000
Total.....		1,117,500

LEAD ORES.

Lead ranks next to zinc in prominence as a Missouri metal, and her production is only second to Colorado's in the United States. Lead, like zinc, is widely distributed over the State, is known to occur in thirty or more counties, and was mined during the past year in fourteen. Much of the lead ore occurs associated directly with the zinc ores, and the two are mined together; but elsewhere the lead is by itself. The counties which are at present the principal lead producers are: St. Francois, Madison, Washington and Jefferson, in the southeast, and Jasper, Lawrence, Newton and Greene in the southwest. Of the total lead produced nearly one-half comes from St. Francois county, and nine-tenths comes from the four counties of St. Francois, Madison, Jasper and Lawrence.

The distribution of lead mining among the counties of the State is shown in the following table, as well as the amount of pig lead produced by the several counties during the past year:

PRODUCERS IN PAST YEARS.					
Crawford.	Morgan.	Camden.			
Wright.	Cooper.	Benton.			
Christian.	Texas.	Moniteau.			
Hickory.	Webster.	Saline.			
PRODUCERS IN 1892.					
	Tons.		Tons.		
Perry.....	4	Madison.....	2,865		
St. Francois.....	15,430	Jefferson.....	268		
Washington.....	1,166	Franklin.....	98		
Miller.....	16	Cole.....	23		
Greene.....	264	Barry.....	55		
Lawrence.....	3,719	Dade.....	64		
Newton.....	812	Jasper.....	7,476		
Total production pig lead in 1892.....			32,260		

Lead is mined in two forms. One is the familiar galenite or sulphide of lead, the other the cerussite, or carbonate of lead, known as "dry bone." The latter is generally a direct product of the decomposition of the former, and is found near the surface, while the former is reached at depths. The galenite is the more common and the more valuable ore, it containing about eighty-seven per cent of lead, while the carbonate contains only about seventy-eight per cent. Very little of the latter is now produced. The average price at which galenite was sold at the mines, in 1892, was a little over \$44.00 per ton.

The lead ores of the southwest, being immediately associated with the zinc ores, occur in the same formation as the latter, namely in the Mississippian limestones, and the conditions of occurrence are essentially the same. Both the galenite and the cerussite are found here; the former, however, in greatest abundance. The lead ores of the southeast, however, occur in much older rocks, in what are known as the Cambrian limestones, and little zinc ore is found associated with them, excepting at the Valle mines and others in that vicinity. The conditions under which they are found are also remarkably different from those of the ores of the southwest. The latter occur in a more or less concentrated state, in large crystals, in cavities, or in irregular deposits, whereas these southeastern ores are found through solid limestone rock, generally in small crystals, in a disseminated condition, and hence are called "disseminated ores," in contradistinction to the concentrated ores of the southwest. Moreover, they occur in certain layers or strata of limestone, and, hence, may be considered in a stratified condition, though

PIG LEAD PRODUCTION IN MISSOURI.

Year.		Tons of pig lead produced.
1892.....		32,260
1891.....		31,000
1890.....		28,840
1889.....		31,590
1888.....		22,610
1887.....		16,720
1886.....		22,780
1885.....		20,916
1884.....		14,330
1883.....		18,390
1882.....		23,870
1881.....		25,630
1880.....		24,850
1879.....		22,386
1878.....		23,112
1877.....		24,680
1876.....		22,550
1875.....		16,480
1874.....		15,160
1873.....		13,840
1872.....		10,220
1871.....		6,840
1870.....		7,060
1869.....		6,480
1868.....		45,560
1855.....		
1854.....		50,400
1847.....		
1846.....		4,500
1845.....		31,200
1833.....		
1832.....		3,900
1820.....		
1819.....		5,590
1804.....		
1803.....		16,095
1720.....		
Total.....		372,839

the ore is not found co-extensive with the limestone rock in which it occurs at any point. The lead ores of Mine La Motte, Doe Run and Bonne Terre are such. The ore is here exclusively galenite as at present mined. The carbonate was extensively dug during the earlier years of mining, from shallow surface deposits, but, at the greater depths at which mining is now carried, this ore is not found.

Lead is recognized as the metal which has been longest mined in the State. Up to quite recent date, however, this mining was confined to the southeastern part. As already stated we find mention of lead mining as early as the year 1700. In 1723, Mine La Motte, in Madison county, was discovered, and mining of the surface ores was begun, and has been intermittently continued ever since. The "Old Mines" near Potosi, in Washington county, were discovered in 1726, and the Mine Renault, in the same county, about the same date. In 1763, the Mine à Burton, also near Potosi, was discovered, and about the year 1800 a number of mines in St. Francois county were opened. The Valle mine, in St. Francois county, was discovered in 1824, and the Perry mine about the same time; the Virginia mines, in Franklin county, in 1834; the Avon mines, in Ste. Genevieve, in 1848. Mining on a large scale was begun at the St. Joe mines, in St. Francois county, as late as 1868, while the Doe Run mines were not opened until 1888. About the earliest record of mining on a commercial scale in the southwest is in 1850, where it is recorded that about 100,000 pounds of lead were produced in Newton county. The Granby mines in the same county began operations about the year 1854. Concerning the production of pig lead in Missouri, we have compiled and estimated from various sources the figures of the table on page 19.

From this table we see that, during the past two decades, fully two-thirds of the total output has been produced. The average price of lead up to the end of the year 1803 is estimated to have been 5 cents; from 1804 to 1854, 4 cents; from 1855 to 1874, 7 cents; from 1875 to 1890, 4 cents. The average price of lead in the New York market in 1873 was 6.32 cents per pound; from this it declined, with fluctuations, to 3.61 cents in 1878, and from that date it has risen, with fluctuations, to 4.35 cents in 1891. Despite these fluctuations, however, the production in the State has continued to increase, as is exhibited in the table. Applying various approximate values for the different periods to the different products up to 1892 inclusive, the value of the product is, in round numbers, \$56,000,000.

The future of lead mining in the State is a question of considerable moment to its industrial growth. A comparison of the production of the year 1892 with that of 1891 shows an increase of 1,260 tons for the latter year, or about 4 per cent. Will this rate of increase be maintained, and for how long? An increase of lead production in the southwest will undoubtedly accompany the increase of zinc production which we have already stated is probable; but as only about a fourth of the production of lead is

from that region, it is evident that we must look to a vigorous sustenance of the industry in the southeast for the rate to be increased, or even maintained. For this we cannot rely entirely upon the mines which are now the largest producers; they must be supplemented by the discovery of new ore bodies, and by the opening of new mines. Prospecting is now in progress in various sections of this region, and much success has attended some of the operations. The work of the Geological Survey in the district is not far enough advanced for specific predictions to be ventured here; that within the great untouched areas of the formations containing these ores extensive and yet undiscovered ore bodies exist, is, however, probable.

IRON ORES.

Iron mining in the State is confined to a portion lying south of the Missouri river and east of the marginal line of the Coal Measure. Within this area mining has been prosecuted during the past year in the following seven counties:

	Tons.		Tons.
St. Francois	79,000	Dent	24,800
Crawford	13,800	Howell	300
Phelps	1,300	Iron	7,000
Franklin	300		

Total production of iron ore during 1892 ... 126,500

During preceding years iron ores have been mined to a considerable extent in nine other counties as follows:

Stoddard.	Washington.	Madison.
Bollinger.	Callaway.	Oregon.
Wayne.	Butler.	Camden.

Geologically, the iron ores occur associated with the rocks of nearly every formation in the State, from the Archean to the Pleistocene, but the manner of their occurrence in these formations is quite different. The iron ores of the Archean and Algonkian formations are the most widely known and have yielded the bulk of the product to date. These are the familiar specular ores of the Iron Mountain and Pilot Knob mines. They are Missouri's best ores with the largest percentage of iron and are mostly of Bessemer grade. The ore at Pilot Knob occurs in a great sheet in Algonkian rocks, while at Iron Mountain it occurs in tongue-like masses or veins penetrating the porphyry in an irregular manner. Another class of ore, known as detrital ore, occurs at both points and consists of boulders scattered through the superficial material over the surface, or along the contact between the porphyry and overlying Cambrian limestones and sandstones. The mode of origin of the massive ore in the porphyry is a somewhat obscure question; it was probably deposited from a solution of iron in water, either in cavities existing in the porphyry or by replacement of the original materials of the rock with iron from such solutions. The immediate origin of the detrital ore is a simple question; that over the present surface having accumulated through the decomposition of the porphyry since Paleozoic times, while that between

the limestone and porphyry was accumulated in a similar manner before the deposition of the rocks of that series.

In the second class of ores are the specular and red hematites of Crawford, Dent and Phelps counties, which have been sources of large supply during past years. These are also excellent ores, but the iron content is not so high nor is the percentage of Bessemer grade so large as with the specular ores of the porphyries. These ores occur generally in stratified rocks of Cambrian age, and are frequently closely associated with the sandstones of that formation; they are also found in the Mississippian formation. Their mode of occurrence is peculiar, they having evidently accumulated in cavities formed in the limestones. Thus, at the Cherry Valley mine, in Crawford county, we have a great depression, like an inverted cone, from which half a million tons of ore have been taken. The sandstone beds, which flank the sides of this cone, and the remnants of such beds which occur in the ore body, dip towards the center of the cavity, indicating that, from the solution of a great layer of limestone, a cavity was formed into which the overlying and insoluble sandstones sank as the roof of the cavity collapsed. In this cavity waters accumulated bearing iron in solution, which was leached from the surrounding rocks, and there the air oxidized the iron contents and caused its deposition. By a long continuation of this process the great body of ore has accumulated.

The third class of iron ores of noteworthy importance are the limonites of the southern and extreme southeastern counties. These are comparatively low in iron content, averaging about forty-seven per cent, and are generally non-Bessemer. They are, however, very abundant, and deserve more consideration than they have received. The ores mined in Howell county are of this class. The mode of occurrence of these ores, and the manner in which they have been formed, are similar to those of the last class. They occur in the limestones and sandstones of the Cambrian system, and have apparently accumulated in cavities in these rocks, like the former. They occur in an earthy and porous condition, mixed with chert and other foreign materials, and also as pipe stem ore which has accumulated, like stalactites, from drippings of chalybeate waters; the latter is generally the better ore.

From what has been said concerning the occurrence of these ores, it is evident that they are of uncertain distribution, and their existence at any point, is, in a certain sense, adventitious. They are not confined to any one stratum, as is coal, nor to any one formation. They exist where the rocks and the conditions of erosion and deposition were favorable for their accumulation. They can only be discovered by detailed examination over each area. There are few general laws governing their distribution to guide one.

The earliest iron mining in the State was in 1815, on Shepherd mountain, in Iron county, and the next was in Crawford county, at the Harrison-Reeves bloomery, in 1820. At the Meramec mine, in Phelps

county, mining was begun as early as the year 1826. The Meramec furnace was built in the year 1828, but the first blast furnace erected in Missouri was by Eversol, Perry and Ruggles, in 1823 to 1824, between Potosi and Caledonia. At Iron Mountain, mining did not begin until 1844, when surface ore was dug by the American Iron Mountain Company. The first iron ore was smelted there in 1848, when furnace No. 1 was put in blast. Soon after 1858, on the completion of the Iron Mountain Railway to Pilot Knob, the first shipments were made. In 1869, the present Iron Mountain Company was organized. The last iron made at Iron Mountain was in 1887, and up to that date the total amount of pig made there was 192,731 tons. The total amount of ore mined at Iron Mountain up to the year 1892 is, approximately, 3,500,000 gross tons. Pilot Knob was first entered in 1835, but little work was done until 1847. In 1848 the first furnace was built. About 1853 the Pilot Knob Iron Company was organized. The total amount of ore which has been mined at Pilot Knob to date is about 1,500,000 tons, and, in addition, about 107,000 tons have been taken from Shepherd Mountain and adjacent points.

In Franklin county, a few deposits were worked between the years 1855 and 1860, and supplied the old Franklin furnace near Moselle, which was erected in 1859. In Crawford county, the Scotia iron furnace was erected in 1849; the Benton Creek mine was opened in 1873, and the Steelville, Grover and Iron Ridge banks were operated about the same time. Cherry Valley was not opened until 1878. In Dent county, the Simmons Mountain and a few other banks were operated in 1874. In Phelps county, the Meramec, Buckland and Beaver Creek banks were operated in the same year.

The table on the following page shows the growth and decline of Missouri's iron production from its beginning to the present.

The total amount of iron ore produced to date is, thus, 7,715,124 tons; from different values applied to different periods we obtain as the value of this total product the sum of \$30,050,612.

The decline in Missouri's iron product is in sharp contrast to the increase in production of her other minerals, and calls for serious consideration. In 1880, she ranked sixth in the Union; in 1890, tenth; in 1891, thirteenth, and she now probably ranks still lower. This sudden fall is to be attributed, in large part, to the cessation of work at the Pilot Knob mine, which was practically abandoned last year. That the well-known deposits of specular ores in the State can no longer play the important part in the iron industry that they have in the past seems unfortunately probable. If the industry is to be maintained other sources of supply must be developed. Among the most promising fields for future activities, observations lead one to point to the limonites of the southern part of the State, which have heretofore remained practically unnoticed. That they are lower in iron contents and inferior in grade to the high-class ores used in the past, is not disputed. But their

IRON ORE PRODUCTION IN MISSOURI.

Year.		Tons of ore produced.
1892.....	.....	126,000
1891.....	.....	138,356
1890.....	.....	232,835
1889.....	.....	265,718
1888.....	.....	217,931
1887.....	.....	427,785
1886.....	.....	379,776
1885.....	.....	234,160
1884.....	.....	233,235
1883.....	.....	295,430
1882 }	{	604,007
1881 }		
1880.....	.....	386,197
1879 }	{	2,582,694
.....		
.....		
1872 }		
1871.....	.....	240,000
1870.....	.....	316,000
1869 }	{	625,000
1861 }		
1860 }	{	310,000
.....		
1850 }	{	100,000
1849 }		
.....		
1815 ) .....	.....	.....
Total.....		7,715,124

they are so much so as to be of no practical use is not the case. Their distribution, quantities and qualities have been determined by recent work of the State Geological Survey and a report just distributed deals at length with these ores. That they will bear shipment does not seem probable, but their development will probably best be by the establishment of furnaces and the production of pig within the mining region itself.

COAL.

Of the four prominent mineral products of Missouri, coal, iron, zinc and lead, coal is the most widespread, and is, doubtless, the most important when measured either by tons or by values. Its mode of occurrence is also the simplest.

The coal within the Coal Measure or Pennsylvanian area lies in beds or sheets, between similar beds of limestone, shale or clay, piled one upon the other

to thicknesses of many hundreds of feet. Thus coal beds are sometimes near the surface, and are sometimes buried at great depths. They are sometimes continuous over areas of many square miles, and sometimes dwindle from a workable to an insignificant thickness within the same square mile. The greatest development of coal beds in the State is over the marginal area, as is indicated by the distribution of coal mines; here the beds are also nearer the surface, which makes them more accessible. In the extreme northwestern counties there is less available coal of workable thickness, though we have there the greatest accumulation of Coal Measure rocks, (a thickness of about 2,000 feet).

Just what is "workable thickness" is, of course, a variable term. In Pennsylvania a bed less than three feet thick was not considered workable, and would not compete with other beds five and more feet thick. In Missouri beds as little as eighteen inches thick

COAL PRODUCTION IN MISSOURI.

Year.		Tons Produced.
1892.....	.....	3,017,000
1891.....	.....	2,650,000
1890.....	.....	2,437,399
1889.....	.....	2,223,000
1888 }	{	4,023,000
1887 }	{	
1886.....	.....	1,800,000
1885.....	.....	2,750,000
1884.....	.....	2,500,000
1883.....	.....	2,250,000
1882.....	.....	2,000,000
1881.....	.....	1,750,000
1880.....	.....	1,144,618
1879.....	.....	900,000
1878.....	.....	900,000
1877.....	.....	900,000
1876.....	.....	900,000
1875.....	.....	750,000
1874.....	.....	714,000
1873.....	.....	700,000
1872 }	{	1,321,930
1871 }	{	
1870.....	.....	621,930
1869 }	{	8,302,195
1847 }	{	160,000
1846 }	{	
1845 }	{	272,255
1841 }	{	
1840.....	.....	8,903
Total.....	.....	44,936,230

are extensively worked with profit, in fact as much as one-fourth of the annual production is from beds not over two feet thick. The reasons for this are in the conditions of the trade and in the manner of occurrence of the coal. The greatest thickness of any one coal bed in the State maintained over a considerable area, is about five feet; that is of a coal bed within the area of what we may term the regular Coal Measures. Beyond the margin of this formation, however, there are isolated deposits of coal of more limited superficial area, but of great vertical dimensions. These are familiarly known as "coal pockets." The coal in these pockets sometimes has the phenomenal thickness of fifty and even seventy feet. These deposits have frequently given rise to false hopes and illusions. The supply of coal which any one of them can yield is always comparatively small and will never warrant very large outlay for the development. The area of the Coal Measures of Missouri is, approximately, 23,000 square miles, distributed over fifty-seven counties in whole or in part. Coal pockets occur in many other counties. It occupies nearly the entire half of the State north of the Missouri river and extends south of that stream along the western border of the State in a strip nearly fifty miles wide. It thus occupies almost exclusively what we have termed the prairie country of the State.

During the year 1892 there was mined, according to the State Mine Inspector's figures, 3,017,000 tons, distributed in the thirty-three counties as follows:

	Tons.		Tons.
Macon.....	685,335	Bates.....	659,924
Lafayette.....	347,600	Randolph.....	297,011
Ray.....	272,948	Henry.....	137,258
Putnam.....	134,984	Vernon.....	119,036
Barton.....	108,784	Caldwell.....	38,333
Linn.....	35,588	Audrain.....	29,792
Grundy.....	28,670	Boone.....	21,058
Callaway.....	16,551	Montgomery.....	16,039
Adair.....	14,820	Johnson.....	10,485
Sullivan.....	8,800	Dade.....	6,881
St. Clair.....	5,405	Saline.....	4,440
Cedar.....	4,181	Cooper.....	3,666
Chariton.....	2,312	Nodaway.....	1,850
Cole.....	1,548	Carroll.....	1,380
Livingston.....	1,000	Schuyler.....	766
Pettis.....	433	Ralls.....	280
Miller.....	127		

Total amount of coal mined during 1892... 3,017,285

Coal digging was probably practiced by early settlers for forge uses, and similar small local purposes. From such beginnings the coal industry grew, and it is thus impossible to set a definite date for its birth. One of the earliest references is that of Captain Pike in 1806, who speaks of fine seams of coal far up the Osage river. In the report of the Lewis and Clarke expedition, performed during the years 1804 to 1806, the existence of coal in the State is also mentioned. According to a congressional report, there was mined in the State in the year 1840, 8,903 tons of coal. From other sources we learn that there was weighed at the city scales of St. Louis in 1846 about 70,000 tons, the great advance being ascribed to the increase in the business, and the number of founderies and factories in the city.

Between the years 1850 and 1860 a large amount of coal was mined in St. Louis county, but we have as yet obtained no figures indicating the amount produced. In 1860, coal was mined for shipment at Carbon, Macon City, Bevier, Lexington and St. Louis. The product at Lexington supplied most of the steamboat trade. The first coal mined on the Missouri Pacific Railway, we are informed by Prof. G. C. Broadhead, was in 1867, by the Pacific Coal Company, near Center Town, in Cole county, and was from a pocket. Mines in Johnson county were opened soon after this.

From the recorded statistics of production, combined with estimates where exact data were not attainable, the table of coal produced to date has been compiled. (See preceding page.)

From this table it is seen that the total amount of coal thus far produced is, in round numbers, 45,000,000 tons; this, at a valuation of \$1.50 per ton, represents \$67,500,000.

REVIEW.

This completes what will here be said concerning the four prominent mineral products of Missouri. Reviewing this we see that of these there has been produced, up to and including the year 1892, the following amounts:

	PRODUCTION IN 1892—		TOTAL PRODUCED TO DATE.	
	Tons.	Values.	Tons.	Values.
Zinc ore...	131,487	\$2,862,475	1,117,500	\$24,585,000
Pig lead....	32,260	2,194,029	639,839	56,000,000
Iron ore...	126,500	234,607	7,715,124	30,050,612
Coal.....	3,017,285	3,825,828	44,936,230	67,500,000
Total...	3,307,553	\$9,116,939	54,408,693	\$178,135,612

Referring to the tables accompanying the preceding pages we see that lead has been produced for the longest period, iron for the next greatest, coal next, and zinc last. That the value of the coal product is the greatest and is represented by a very large bulk, which is significant as indicating the amount of traffic which a coal industry gives rise to; that the value of pig lead product is next, but is represented by an almost insignificant bulk as compared with coal; that the value of the zinc product is third, but is represented by a somewhat larger bulk than lead, due to the fact that the tonnage is of ore and not of spelter; that the value of the iron ore produced is least of all, but is represented by a comparatively large bulk. The productions of zinc, coal and lead have increased, and this more rapidly with the zinc than with any one of the others. The production of iron in the State was large and increasing between the years 1870 and 1887, but it has fallen off alarmingly during the past few years. The value at present of the annual production of coal, zinc and lead are not very widely separated, being about four, three and two millions of dollars respectively; while the iron product represents a value of less than one-quarter of a million.

That Missouri has prominent rank as an ore producer is evident from comparisons made with other States of the Union. Of these products, her lead, zinc and coal are articles of traffic and export, as are

also her clays and limes, and her supplies of these are large. They are thus sources of direct income, and, in addition, supply home needs. In other materials for domestic consumption the State is also splendidly endowed, and, as her population increases, and her local industries develop, the full value of these possessions will become more and more appreciated.

CLAYS AND SHALES.

Missouri possesses in great abundance clays suitable for all ordinary uses, such as the manufacture of common, fire and ornamental brick, for paving brick, sewer pipe, drain tile and pottery. In addition, she possesses large quantities of superior fire clays, which have, so far, been principally used for the manufacture of fire brick, glass house pots and gas retorts. Recent work of the State Geological Survey is further developing the fact that there are also large deposits of clays suitable for the manufacture of stoneware and china. So far as investigations have gone to date, the following is a list of the counties in the State which contain clays of the characters specified:

Fire Clays.—St. Louis, Franklin, Crawford, Phelps, Morgan, Cooper, Henry, Warren, Callaway, Audrain, Randolph, Greene and Clay.

Stoneware Clays.—Stoddard, Scott, St. Louis, Moniteau, Cooper, Morgan, Henry, Cass, Vernon, Barton, Jasper, Christian, Polk, Monroe, Shelby.

China Clays and Kaolin.—Cape Girardeau, Bollinger, Iron, Jefferson, Oregon, Howell, Morgan.

The clays for common uses are derived chiefly from the loess, or from residuary products of rock decay. Paving brick is manufactured largely from Coal Measure shales, as is also much of the sewer pipe and drain tile. Fire brick, pots and retorts are made largely from the Coal Measure clays, especially in the works of St. Louis. Various proportions of what are known as "rock clays" are, however, mixed with these. Some fire clays, stoneware and china clays of the State occur in pockets in older rocks, from the Cambrian up to the Mississippian. They are hence of doubtful age, though of comparatively recent formation. They are altogether peculiar deposits, both as regards the conditions of occurrence, as well as the character of the material.

The common clay products used in ordinary building purposes are manufactured in all the larger towns of the State. Excellent paving brick are produced at Moberly, in Randolph county. There are large sewer pipe works at St. Louis and Kansas City. Fire brick and other refractory clay products are made on a large scale in St. Louis; also at Fulton in Callaway county, and Mexico and Vandalia in Audrain county and in Montgomery county. Potteries are operated in St. Louis, Kansas City, Henry county and at a few other points in the State.

Missouri clays have a high reputation, especially the fire clays. The products, as well as the raw material, have been shipped to all parts of this country and to foreign countries also, such as Mexico, South

America and Africa. They are destined to have a great development in the future, and will be the basis of a large industry.

BUILDING STONES.

Missouri is abundantly supplied with building stones for all ordinary home uses, and shipments are made from many of her quarries to foreign points. In this list are included limestone, marble, sandstone and granite, and, for ornamental purposes, Mexican onyx. Among the limestones, the most prominent source of building material, are the Mississippian beds which are quarried about St. Louis, near Springfield in Greene county, in Dade county, at Carthage in Jasper county, about Hannibal in Marion county, about Louisiana in Pike county. This stone is of a light gray color, coarse-grained, crystalline and often takes a fine polish. From some of the quarries it can be obtained in blocks of almost any dimensions required. Fine joints sometimes traverse this rock in a horizontal direction, known as "Crows feet" or "suture joints." These, though not directly impairing the strength of the stone, are lines of attack and will become lines of weakness with long exposure.

The marbles of the State are confined principally to the southeastern portion, to Iron, Madison, Reynolds and Ste. Genevieve counties. Some so-called marble has been found in northern Warren and Montgomery counties. None of this stone has been extensively used so far. The beds in Madison and Iron counties are seldom over a foot thick and are often less. The stone is gray, pink and red colors, often beautifully marked. The Ste. Genevieve county bed is thicker, but not uniform in texture, though often handsomely marked. Quite extensive openings have been made in these latter beds, and some of the product has been shipped to Chicago, but the obstacles in the way of transportation, and other causes, have prevented their extensive development.

The sandstones of Missouri are of excellent quality, and are very abundant at a number of places. Some of the best stone in the State is found in Ste. Genevieve county, a few miles south of the town of that name. The stone was quarried extensively between the years 1873 and 1887. The face at present exposed is about twenty feet high. The stone is of a buffish yellow color. It has been used in the approaches of the Eads bridge over the Mississippi river at St. Louis, in the Iowa State House and in other important structures. Grindstones are also manufactured from this stone. The Warrensburg sandstone, in Johnson county, is operated by a number of quarries in which faces fifty or more feet high are exposed. This stone is extensively used in Kansas City and other places in large and handsome buildings. It is of a uniform light drab and also of a yellowish color. At Miami, Carroll county, is the White Rock quarry. Here a face some sixty feet high is exposed. The stone is similar to that at Warrensburg; large quantities have been quarried

for window and door sills and caps and for other purposes. In Vernon county are a number of deposits of sandstone of good quality, but some is adapted only to interior work.

The onyx of Missouri is of the variety known as Mexican, and is arragonite or carbonate of lime. It has been developed only quite recently, chiefly in Crawford and Pulaski counties. It is also known to occur in Howell, Stone, Barry, Laclede, Camden, Morgan and other counties; nothing more than specimens have been obtained as yet from these counties, however. It is generally of a brown or buff color, though sometimes of a clouded white; it admits of a high polish and is often translucent. It is generally found in caves and is a product of the deposition of lime from percolating waters.

LIMES, SANDS AND GRAVELS.

Of these common materials of construction Missouri has an abundant supply. Limes of the very best grades are manufactured at several points in the State. Large quarries and kilns are operated in and about St. Louis, at Hannibal in Marion county, at Louisiana in Pike county, at Ste. Genevieve, at Cape Girardeau, at Springfield and at Ashgrove in Greene county, at Carthage in Jasper county, and in Callaway county, and at other points in the State. The rock used in all these cases, with the exception of Cape Girardeau, is from the Mississippian series. It is a remarkably pure limestone, especially that quarried at Louisiana.

Sands and gravels are abundant along the streams in all parts of the State, but especially south of the Missouri river. Sand is dredged from the channels of the Missouri and Mississippi rivers at several points. The river bars are also sources of gravel, but the glacial deposits and river terraces of earlier Pleistocene age are perhaps more frequently resorted to. In the vicinity of Pacific, and at other points in Franklin county, beds of gravel occur well above the present flood plains of the stream. These are mixed with a ferruginous clay which becomes very much compacted under wagon or foot travel. Many car-loads of this gravel are shipped to St. Louis annually and used for a top dressing along some of the streets and boulevards.

MINERAL WATERS.

Missouri possesses a large number of mineral waters, many of which are of undoubted therapeutic value. They are not confined to any one part of the State, but are most abundant in the central and western portions. These waters have recently received extended study, and, as a result, they are divided into the following five classes:

(1) Muriatic waters, (2) Alkaline waters, (3) Sulphatic waters, (4) Chalybeate waters, (5) Sulphur waters.

The Muriatic waters are essentially brines, and salt is their main and distinguishing constituent. They are among the most abundant in the State, and the volume of their flow at some of the springs is

very large. The amount of mineral matter in the different waters varies greatly and ranges as high as 1800 grains to the gallon. In Alkaline waters sodium or magnesium carbonate are the distinguishing constituents. Comparatively few of such waters are recognized in the State, and those examined are not highly mineralized, the maximum amount of mineral matter contained being 95 grains to the gallon. Sulphatic waters contain one or more sulphates as their distinguishing constituents. Very few of these have been discovered. They contain as much as 570 grains to the gallon. The Chalybeate waters are very abundant in the State; they are distinguished by containing ferrous carbonate in solution. The maximum amount of mineral water contained in any examined so far is 150 grains to the gallon. Only two Sulphur waters have been determined. These contain sulphur combined as a sulphide or sulphhydrate. The waters analyzed contain about 120 grains to the gallon.

Most of the mineral springs in the State are frequented by people living in the neighborhood and a large number are improved, so as to provide for the care of at least a few guests. Extensive or complete improvements of a sanitarium have been made only at a few places. The most important of these are at Excelsior Springs in Clay county, near Kansas City, at Lebanon in Laclede county, at Pertle Springs in Johnson county, at Sweet Springs in Saline county, at Clinton in Henry county, and at Nevada in Vernon county.

MINOR MINERAL PRODUCTS.

COPPER, BARYTES, GLASS SANDS AND SILVER.

Copper.—Among the minor mineral products copper ore is of quite frequent occurrence, generally in the form of the sulphide, chalcopyrite, or of the carbonate, malachite. The principal occurrences of such ore are Ste. Genevieve, Shannon and Franklin counties. It is found at these places in the magnesian limestones of Cambrian age; the ore follows the stratification planes, but is apparently formed by replacement subsequent to the deposition of the rocks. At the Cornwall mines, in Ste. Genevieve county, extensive mining operations were prosecuted in the past and reduction works were erected. At present no mining of copper ore is done in the State.

Barytes.—In production of barytes, Missouri ranks second in the Union, according to the figures of the 11th census, and her product is credited with being the purest. In 1889 the production was 7,558 tons, valued at \$32,715, and in 1892 it was about 10,000, valued at nearly \$40,000. This production is distributed over Washington, St. Francois, Miller, Morgan and Jefferson counties. Nearly four fifths coming from the first-named county. The material is obtained largely from the dump piles of old lead mines, it being found in crevices in the limestone associated with the lead ore. At some localities it is dug directly. The product is used chiefly in the manufacture of paint.

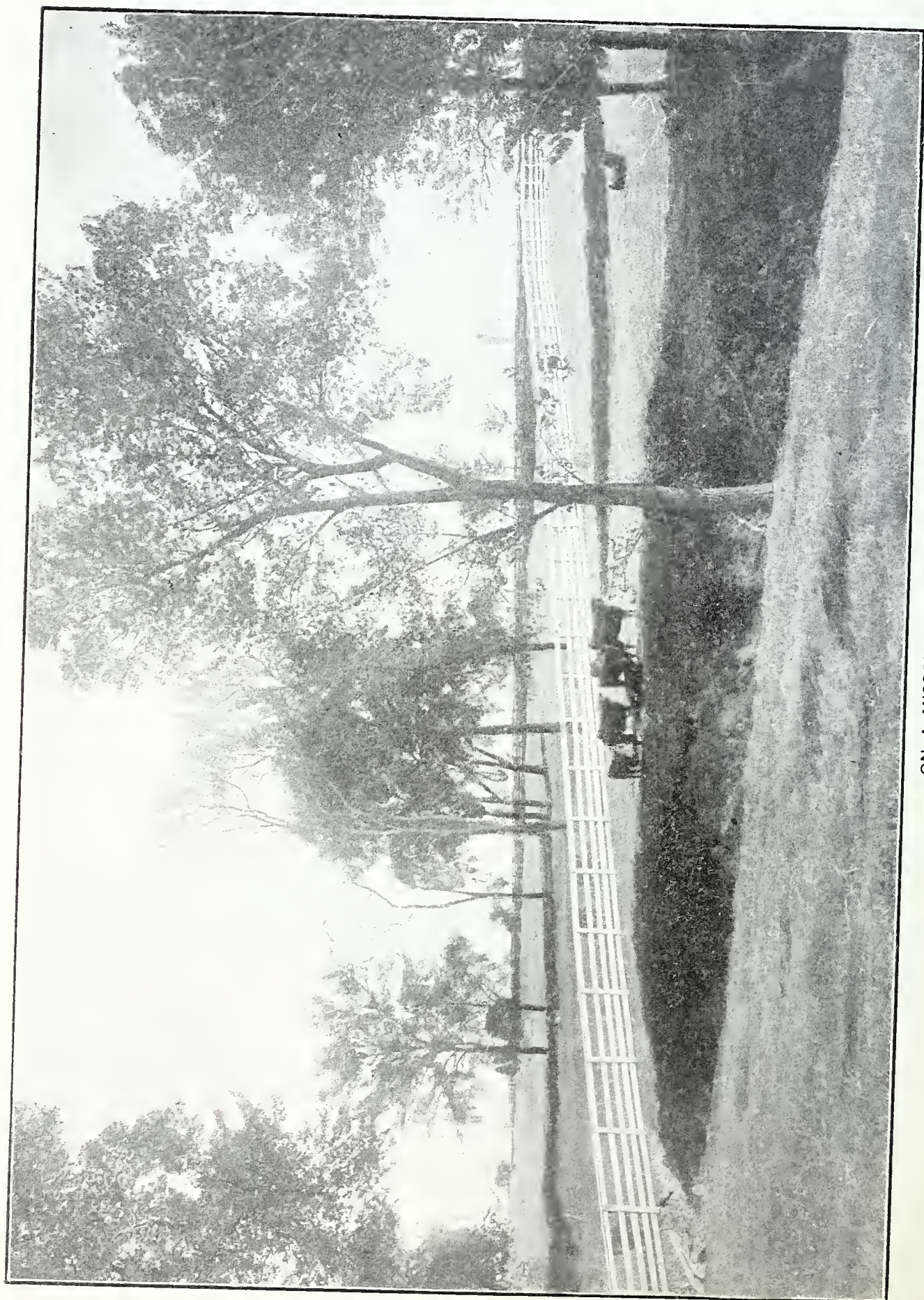
Glass Sands.—Sands suitable for the manufacture of plate and other qualities of glass are abundant in the eastern part of the State, especially in Franklin, Jefferson and Ste. Genevieve counties. The formation known as the Saccharoidal sandstone is the chief source of this material. Such sand is dug and shipped at Pacific and Tavern Rock in Franklin county. About 750 carloads, valued at \$10.00 per car, were shipped in the year 1892. At Crystal City, in Jefferson county, an equal amount of sand was shipped, and, in addition, the large plate glass works erected at that place were supplied. From this point 180 carloads of plate glass were shipped in 1892, valued at \$1,253,000.

Silver.—The only occurrence of silver in Missouri is at the Einstein silver mines on the St. Francois river, in Madison county. Here a nearly vertical vein of quartz occurs traversing the Archean granite and carrying argentiferous galenite. Picked specimens of the latter yielded to the assay all the way from a fraction of an ounce to 184 ounces to the ton and one specimen much exceeded the last figure. The mine was operated some 13 years ago and an incline and shaft were sunk. The mine has been abandoned ever since for causes which are not clearly known. Many are still confident that paying ore exists here.

CONCLUDING REMARKS.

Limitations of space have prevented anything like a full treatment of the many topics included in the preceding article. The attempt has been made to convey in these few pages a clear, but generalized idea of the geology and mineral products of the State of Missouri. The coals, the iron ores and the mineral waters of the State have received quite full treatment in the volumes on these subjects recently issued by the State Geological Survey. A report on the subject of zinc and lead ores is now being prepared by the State Geologist and will be ready for distribution later; reports on other subjects are prepared or are in course of preparation and will be issued from time to time. To these works the reader is referred for more detailed information. In the preceding article the writer has drawn largely from these reports or manuscripts of the survey, but for the figures of production and shipments during the past few years, he is, in addition, indebted to the published reports of the State Mine Inspector, Mr. C. C. Woodson, and of the ex-State Labor Commissioner, Mr. W. C. Hall.





ON A MISSOURI FARM.

THE AGRICULTURAL WEALTH OF MISSOURI.

For the tables and much of the information in this section the editor is indebted to the State Board of Agriculture, to Miss Ida L. Crume, Secretary, and to Mr. Levi Chubbuck, ex-Secretary.]

SIXTY-EIGHT thousand square miles of the richest, most varied land the sun shines on, lying in the spot chosen of all the earth's surface for homes. To the south of the ice king's domain, north of where stifling heat holds sway, midway between the two great oceans, is Missouri.

Along the northwestern border, through the center and along the eastern length flow the two great rivers of the world, while from the interior of the State flowing into these are other noble and beautiful streams—the Nodaway, Grand, Chariton, Salt, Meramec, St. Francois, Black, Current, White, Gasconade and Osage rivers—all to be proud of, and making with their tributaries a river system without parallel.

The loess formation of the Mississippi and Missouri river bluffs of more than fifty feet in depth of plant food, the luxuriant rolling prairies of North and Southwest Missouri, interspersed with belts of timber along the water courses, the alluvial deposits of inexhaustible fertility of the central river counties, the rich grazing lands of the Ozark range, the unequaled fruit lands of South Missouri, and the Mississippi bottom lands of the southeast, richer than the Nile, afford a variety and quality of soils that are the acme of a bountiful nature.

No visitor to the World's Fair will need to be reminded of the greatness of Missouri as an agricultural State. He will find the best reminder in the magnificent exhibit in the Agricultural Building, in which Missouri occupies more space than any other State in the Union. The area of the exhibit is 3,640 square feet, and this has been most carefully utilized. The space is invaded by the south stairway leading to the east gallery. This difficulty has been overcome by building an extension to the staircase as high as the first landing. The extension has been turned into a corn palace, which will be decorated outside and inside with vari-colored corn. The facade of the palace is being decorated to represent the portcullis of a mediæval castle, with flanking towers on either end of the structure. This palace stands in the southeast corner of the space. In it are devices and statistics illustrating the development of the corn industry in Missouri.

The general plan of the pavilion includes four structures. In the one in the east corner, the corn palace is the most prominent. An ornamental rail-

ing incloses the entire space, which fronts on one of the circular spaces from which the eastern aisles of the agricultural building diverge. The main entrance is from the circle through an ornamental arch worked out with corn and field products. Facing the arch on the inside is the pagoda, the first section of which is a series of arches. Under the arches, fountains keep verdant growing agricultural specimens arranged in tanks about the base. The next section of the pagoda is a three-sided pyramid. On one side is the coat of arms of Missouri. Another side shows the American shield and eagle, and the third panel contains a life-size portrait of Washington. These decorations are all done in grasses, seeds and grains. Surmounting the pyramidal section of the pagoda is a globe six feet in diameter, upon which the different continents and countries are marked out in grains and seeds of various colors. The names of the geographical divisions are lettered in many-colored grasses, dyed the required shade. Upon the globe is a representation of the Santa Maria worked out in wheat. This ship forms the apex of the pagoda, and has been artistically fashioned by the ladies.

The third corner of the pavilion is occupied by a model of the Eads bridge, more generally known as the St. Louis bridge, across the Mississippi. This is made of cane with the arches supporting it of brick and stone. Under the piers water tanks have been put in, so as to make the bridge more realistic in appearance. The cane is all brought from Missouri, and the structure is attractively decorated.

To the north of the stairway, in the center of the exhibit, there is a handsome pedestal, 12 feet long and 8 feet in height, and terraced to afford room for exhibiting grains of all kinds in inverted sample jars. The pedestal is entirely covered over with agricultural products, and surmounted by a life-size equestrian statue of General Washington. On a framework of wire both horse and rider are wrought out in grains of various colors and kinds, and the artistic work is of such a nature that the features of Washington may be as easily recognized as they are in handsome paintings of the hero.

On the south side of the space is a case 26 by 7½ feet for Missouri's tobacco exhibit. A leaf of each variety shown is spread out on a piece of cardboard, or, in other words, mounted as any botanical speci-

men should be, and placed under an oblique plate-glass cover, so that visitors may look squarely down upon it. The top and one side of the case are of plate glass, and in it are hung, upright, samples of all our varieties of tobacco in "the hand." In the bottom are stored other specimens of the same varieties, which tobacco men can handle if they so desire. To handle the specimens intended for exhibition only would ruin them.

There will be 134 varieties of wheat and 100 of grasses in the exhibit. The balusters, railings and ceilings of the galleries are all covered with handsome designs made of various Missouri agricultural products. In this manner sorghum, broom corn, flax, cotton, castor beans, hemp, etc., are used to fine advantage.

After spending a whole day examining the Missouri agricultural exhibit—and a shorter period would not suffice for even a casual view—the visitor will be interested in knowing something of the agricultural resources of a State which can give so splendid an account of itself. The returns for 1892 are not yet complete, but the following comparative statement of the yield of 1890 and 1891 will be read with interest:

	Acres.	Yield per acre.	Total yield.	Price per bu., lb. or ton.	Total valuation 1891.	Total valuation 1890.
Corn.....	6,340,600	30	190,218,000	.38	\$ 72,282,840	\$ 62,273,750
Wheat	1,792,000	14	25,088,000	.80	20,070,400	15,790,400
Oats	1,104,000	25	27,600,000	.29	8,004,000	7,976,400
Hay	1,653,600	1.65	2,728,440	6.82	19,607,961	14,553,270
Flax	62,308	5.2	324,000	1.05	340,200	465,750
Tobacco.....	11,160	773	8,626,680	.074	638,375	696,024
Potatoes (Irish).....	86,700	110	9,537,009	.35	3,337,950	2,823,275
					\$ 124,281,726	\$ 104,578,869

There could not be included in the above table the area, product and value of the special crops—like watermelons, of which at least \$300,000 worth were grown in two or three counties in Southeast Missouri; the cotton crop of about twelve counties in South Missouri; the castor bean crop of Southwest Missouri; hemp, a paying crop in Central Missouri; broom corn, grown extensively in many counties; sorghum, vegetables and other special crops for which accurate figures cannot be obtained.

CORN.

"Korn is King" in Missouri, and the yield per acre both in 1891 and 1892 was greater than in any one of the seven great surplus corn-producing States. This fact is very fully brought out in the report of the Government Agricultural Department for the year 1890, which is quoted from owing to its exceptional completeness and to the value of the comparisons it contains. Dealing with the reduced output for the year owing to the season not being up to the average, the report says:

"The estimated product is 1,489,970,000 bushels, or a yield of 20.7 bushels per acre. With the single exception of 1887, another year of severe drouth, this

is the smallest aggregate grown in any year since 1881. It is only 70 per cent of last year's great crop, but the disparity in commercial corn between the two seasons is even greater. The seven States of Ohio, Indiana, Illinois, Iowa, Missouri, Kansas and Nebraska are the corn-surplus States, practically furnishing all that enters commercial channels. The crop in the other States is consumed where grown, and it exerts an influence on commercial corn only as it supplies home requirements or makes necessary a demand on the surplus States. Outside of these seven States the yield is practically only of local interest.

"The diminution in rate of yield this year is largely in this important belt of States, they producing but 860,000,000 bushels against 1,413,000,000 bushels in 1889—a falling off of nearly 40 per cent. This analysis shows an even smaller supply of commercial corn than the estimates of aggregate production would indicate. There is another important point, which is generally overlooked in the hasty generalization of commercial writers, bearing most strongly upon the question of supply. Our annual records show that five-sixths of the crop is consumed in the

county where grown, only about twenty per cent being distributed beyond county lines. This consumption on the farm is in the nature of a fixed requirement for work animals, meat production, seed, etc., and is a demand not flexible in its character. The stimulus of high prices would, of course, shorten to some extent the rations of beasts, but very high prices indeed must rule before the commercial supply would be largely augmented at the expense of home consumption. Of course, with cheap corn there is a larger and wasteful consumption on the farm, but the records upon which the estimate of eighty per cent is based cover a series of both good and bad years, large and small crops. The demand for farm consumption being thus a comparatively fixed amount, it follows that the percentage of the crop available for distribution beyond county lines must be smaller in bad than in good years. Instead, therefore, of reckoning upon twenty per cent of the present crop being thus available, a smaller percentage must be counted upon. The aggregate crop of 1887 was but little below that of 1890, and the March following it appeared that but eleven and seven-tenths per cent was available for commercial wants. Instead of the usual one-fifth, less than one-eighth crossed county lines.

Should the rates for the present crop run in about the same proportion, the commercial supply from this crop would be less than one-half as great as that from the corn of 1889. In other words a reduction of thirty per cent in the aggregate crop would involve a reduction of more than fifty per cent in the commercial surplus.

"The rate of yield of the crop is the smallest with two exceptions during twenty years past. In 1887 and 1881, both years of very severe drouth, it was lower. The records of condition throughout the growing season were so uniform that their interpretation was plain, and the November estimates of yield per acre made by our correspondents were very near the final record. The average then given was 19.9, and the final result, after other parallel lines of investigation, is less than one bushel higher. The duplicate investigations included returns of actual acreage and product from more than 90,000 individual farmers scattered through every producing county of the Union, as well as other tests, and the results are extremely gratifying, indicating the substantial accuracy of the returns of our regular correspondents.

"The great bulk of our corn crop is used at home, in fact is consumed upon the farms where grown, and but a very small proportion is ever shipped abroad. The shipments, however, small as they are, are extremely variable, depending entirely upon the domestic price. When the volume was greatest, it amounted to but six and five-tenths per cent of the crop, and from that it ranges down to one per cent. The production and exportation, with the annual average of each for twenty years, is presented in the following statement, showing that during that period the foreign demand has amounted to only three and nine-tenths per cent of our production :

PRODUCTION AND EXPORTATION OF CORN.

Years.	Production.	Exports.	Exportation.
	Bushels.	Bushels.	Per cent.
1870	1,094,255.000	10,673.553	1.0
1871	991,898.000	35,727.010	3.6
1872	1,092,719.000	40,154.374	3.7
1873	932,274.000	35,985.834	3.9
1874	850,148.500	30,025.036	3.5
1875	1,321,069.000	50,910.532	3.9
1876	1,283,827.500	72,652.611	5.7
1877	1,342,558.000	87,192.110	6.5
1878	1,388,218.750	87,884.892	6.3
1879	1,754,591.676	99,572.329	5.7
1880	1,717,434.543	93,648.147	5.5
1881	1,194,916.000	44,340.683	3.7
1882	1,617,025.100	41,655.653	2.6
1883	1,551,066.895	46,258.606	3.0
1884	1,795,528.000	52,876.456	2.9
1885	1,936,176.000	64,829.617	3.3
1886	1,665,441.000	41,368.584	2.5
1887	1,456,161.000	25,360.869	1.7
1888	1,987,790.000	70,841.673	3.6
1889	2,112,892.000	103,418.709	4.9
Annual Average	1,454,299,498	56,768,864	3.9

"The returns of farm value of the crop show in a striking way the influence of short crops upon prices. While the crop aggregates only 70 per cent of that of last year, the aggregate money value of the crop to the producer is \$156,000,000 greater.

"The advance in value is in greater ratio than the decline in volume. It proves that the law of supply and demand still controls, and that small crops are a sure cure for low prices, but unfortunately the absolute failure of the crop in large districts prevents all growers from sharing in the average enhancement of the remaining product."

The following return shows the standing of Missouri among the corn-producing States and Territories, and shows the percentages of Missouri to the entire country, which are eminently favorable to it:

Percentage of acres planted.....	9.43
Percentage of bushels harvested.....	12
Percentage of cash value.....	10.25

STATES AND TERRITORIES.	ACRES.	BUSHEL.	VALUE.
Maine.....	27,855	1,008,000	\$ 746,180
New Hampshire	34,487	1,259,000	906,319
Vermont	54,893	1,839,000	1,324,020
Massachusetts..	54,134	1,868,000	1,307,336
Rhode Island...	12,307	402,000	289,756
Connecticut.....	56,407	2,014,000	1,401,611
New York	642,896	17,101,000	11,115,672
New Jersey.....	357,342	11,185,000	6,934,579
Pennsylvania...	1,383,377	38,043,000	22,825,721
Delaware.....	223,136	4,128,000	2,064,008
Maryland	725,907	16,333,000	8,166,454
Virginia.....	2,109,853	36,922,000	20,307,335
North Carolina.	2,726,585	36,264,000	19,914,977
South Carolina.	1,576,230	16,078,000	11,254,282
Georgia	2,981,486	31,306,000	21,600,866
Florida.....	491,428	4,570,000	3,427,710
Alabama	2,489,226	25,390,000	17,265,271
Mississippi.....	1,951,651	24,396,000	17,076,947
Louisiana.....	1,061,169	16,979,000	11,885,093
Texas	4,116,281	63,802,000	45,937,696
Arkansas.....	2,002,575	33,443,000	21,737,952
Tennessee.....	3,600,657	67,692,000	35,200,023
West Virginia..	671,733	13,435,000	8,060,796
Kentucky	2,816,155	63,645,000	31,186,100
Ohio	2,827,277	65,876,000	33,596,533
Michigan.....	977,188	26,580,000	14,618,733
Indiana.....	3,604,252	89,025,000	41,841,761
Illinois.....	7,154,424	187,446,000	80,601,741
Wisconsin.....	1,102,022	33,061,000	14,877,297
Minnesota.....	768,449	21,286,000	8,940,136
Iowa	8,771,299	232,439,000	95,300,164
Missouri	6,796,318	175,345,000	77,451,802
Kansas.....	3,542,891	55,269,000	28,187,241
Nebraska.....	3,072,800	55,310,000	26,548,992
California.....	159,871	4,396,000	2,857,694
Oregon	8,011	173,000	114,205
Colorado	42,133	767,000	483,097
The Dakotas....	884,593	12,030,000	6,015,233
New Mexico.....	56,289	1,126,000	821,819
Utah	35,175	739,000	502,299
Total.....	71,970,763	1,489,970,000	5754,432,451

During the year 1891, there were actually shipped out of Missouri upwards of 10,000,000 bushels of corn, counting only shipments from railroad stations and river wharfs within the State. In another chapter reference has been made to the marvellous

fertility of the soil and the singularly favorable weather for agricultural purposes. The matter is mentioned again here, because in the corn product the influence of these two conditions is especially felt. Corn can be raised very profitably in the State, and although there is not a gold mine in it, there is a good return with a satisfactory absence of risk. The importance of crop rotation is fully appreciated in Missouri, and it is owing to this that the products of the State are so diversified.

WHEAT AND SMALL GRAINS.

And if Missouri is great in corn, it is well-nigh as important in wheat. Every county in the State produces wheat, the county acreage varying from 3,000 to 75,000, with a total number of acres in wheat cultivation approximating if not exceeding 2,000,000. Missouri wheat is of world-renowned reputation, and it furnished the flour from which was made the gold medal bread at the Vienna Exposition. In point of wheat acreage Missouri ranks seventh or eighth, being about on an equality with Iowa, while the only States which rank above it are the Dakotas, California, Kansas, Indiana, Minnesota, Illinois and Ohio. In bushels it stands about the same. The climate and soil combine to make the cultivation of wheat very profitable and a poor wheat crop is a very rare event in Missouri.

To one who has studied Missouri wheat statistics for the last ten years a pleasing fact is apparent; the yield per acre of the Missouri wheat crop is increasing one year with another. During the twenty years previous to 1880 there was a gradual falling off in yield per acre, especially in the older settled portions of the State. During the last decade farmers have been gradually decreasing their acreage sown to wheat, growing more clover as a fertilizer, and as a result getting a better crop at less cost. It is to be hoped the policy will continue until our present output of wheat shall be grown on not much more than one-half the land now devoted to the crop. With present and prospective prices it would not be wise to try to grow more wheat to put on the market, but rather to grow what wheat is grown on a smaller area and thus reduce cost of production.

The wheat receipts at St. Louis range from twelve to eighteen millions per year, and the volume of business is very large. It may be stated as a fact, patent to all traveling through the State, that there is an increasing appreciation among the farmers of the fact that there is money in wheat-raising; and that the soil of no State in the Union is better adapted for the purpose than that of Missouri. Writing on this subject, with especial reference to the north-eastern counties, Maud Rippey, a competent authority, says:

"Wheat does well, especially in the timber lands, the average yield being from twenty to twenty-five bushels. Wheat-raising is rapidly growing in favor with the people of this country, and good crops are raised where a few years ago it was considered unprofitable."

Ex-Governor Morehouse wrote equally enthusiastically, in 1890, as to the northwest counties, of which he said:

"Situated in the 39th and 40th degrees of latitude, the climate is mild and temperate, and is a happy medium between northern bleakness and southern heat and humidity. Whilst Northwest Missouri, in her virgin beauty was the admiration of all who beheld her, yet the maiden is far surpassed by the motherly blessings she bestows on all her children who bask in the sunshine of her loveliness and merit the reward of honest labor. The soil is fertile, productive and almost inexhaustible. In some parts, mainly along the Missouri and larger rivers, is a sandy loam. The prairies and most of the timber lands are a black loam vegetable mould, all rich, deep, open and flexible, underlaid by a porous, calcareous clay subsoil that retains moisture and absorbs water equal to any land in the world. There has never yet been a failure to raise a crop in Northwest Missouri, though some years have been more favorable than others. In that portion that was scourged by grasshoppers in 1875, crops planted after the 4th of July matured sufficiently to feed stock. The country has not been settled long enough to determine whether the bottom and level upland prairies that do not wash will become exhausted by continuous cultivation. In every county lands have been in actual cultivation every year since the settlement of the country—from thirty to fifty years—without any material diminution of the crops."

Of Southwest Missouri, Executive Commissioner Gwynn is authority for the statement that thirty to forty bushels of wheat to the acre are by no means phenomenal yields, and he cites instances in 1889, when even this achievement was surpassed.

"The bottom prairies," he writes, "closely resemble in soil the river bottoms, both being of surpassing fertility and composed largely of a rich, sandy, vegetable humus, easily cultivated, and yielding enormous crops of corn, wheat, tobacco, potatoes, and, in fact, every cereal and vegetable that grows in the temperate zone. A total failure of crops is unknown, and they are as certain in this favored region as they are anywhere in the world where rainfall is depended on to make them. Another soil of great productiveness is found in some portions of Southwest Missouri. It is usually of gently rolling prairie and is underlaid by the upper and middle coal measures. This soil is black from the presence of lime in quantity, and if the limestone contains iron, the soil is red or brown, but its productiveness is not thereby lost."

Oats are raised all over the State, from a five to eight million bushels being shipped out of the State every year, while an immense percentage of the product is used at home. The yield for the year 1890, a typical one in nearly every other respect, was unfavorable throughout the country for an oat crop, but Missouri held its own well. The steady enlargement in the volume of this crop has been one of the features of our agriculture during the past decade, and,

like corn, the demand has been for domestic consumption. Its use for human food is steadily increasing, though the aggregate thus used is small. Like corn it is used as feed for animals, and there is an intimate relation between the two grains growing out of their interchangeable use. The value of the crop depends partially upon the size of the corn crop, and the present crop, short itself, and coming with a small corn yield, commands a high price.

The oats acreage is a little smaller than that of wheat, but the quality is of the highest, and the crop is a distinctly popular one. Rye, and the small grains are grown with success.

MISSOURI GRASSES.

The exhibit of Missouri grasses is one of the most significant features of Missouri's agricultural display. It has been said that a country is thrice unfortunate which has no native grasses, and conversely Missouri is one of the most fortunate regions in christendom. For in Missouri grasses of all kinds flourish luxuriantly. Blue grass, timothy and clover cover the land, and grow as well as they could in their native home. The blue grass of this region bids fair to rival that which has made Kentucky famous, and when Missourians have learned to care for it as do the Kentuckians, we shall have no reason to fear a comparison. Even on the poorest white oak hills, it does remarkably well. Clover takes as kindly to the soil as could be wished, and is doubtless the best means for restoring and maintaining its fertility. But it is generally sown with timothy, thereby greatly increasing the yield of hay per acre, and, it is claimed, enhancing its value for stock purposes. Timothy grows splendidly, and averages about five bushels of seed and one and one-half tons of hay per acre.

"Northwest Missouri," wrote Mr. Morehouse in 1889 (and his remarks really apply to the entire State), "has an abundance of grass. The country that produces a luxuriant growth of tame grass has one of the best elements of wealth that can be named. All the grasses suited to the temperate zone grow in abundance in Northwest Missouri. The luxuriant growth of wild prairie grass that covered the prairies thirty years ago has given place to as equally prolific crops of timothy, clover and blue grass. The average crop of hay for timothy and clover is fully two and one-half tons per acre. The famous blue grass regions of Kentucky, renowned for the production of blue grass, thoroughbred horses and cattle, may look well to its laurels, for Northwest Missouri will yet rival it in the production of blue grass, fruit, horses and cattle."

Missourians are so used to this profusion of the most beautiful and valuable grass that they are apt to overlook its value and its beauty, but visitors are never backward in their expressions of delight or in their appreciation of the blessing the State enjoys.

COTTON.

Missouri is not generally spoken of as a cotton State, but it is a matter of record that Missouri cotton ranks second only to some of the finest sea-island yields. Cotton is grown extensively in the southern tier of counties, and is a source of profit, even when prices are at the low figures of recent years. The value of the surplus product shipped out of the State by rail exceeds a million dollars a year and is increasing.

TOBACCO.

Nearly all the counties in the State were found by the official census taken in 1890 to be raising tobacco. The total acreage in the State was returned as 11,349 with a product of about 10,000,000 pounds, sold by the growers for about \$500,000. Chariton county led easily in this industry, having 3,453 acres planted in tobacco, on which were raised 3,500,000 pounds valued at nearly \$100,000.

Missouri has not held its own so well in tobacco as in other crops. The Missouri district leads the country in tobacco manufacture, but in leaf tobacco it has been losing ground for some time, and as a tobacco-growing State Missouri also has been falling behind some of her old competitors—notably, Kentucky and Ohio. One reason for this is to be found in the fact that our planters are still raising yellow pryor tobacco, while the planters of Kentucky and Ohio gave up all shoe-string grades several years ago, and have ever since been cultivating white burley, which brings almost as much again in the market as pryor. Kentucky and Ohio led off with a united effort in the cultivation of the burley type, and left Missouri to struggle with her old-style yellow pryor, or 'shoe-string' grades; and our agricultural people seem to insist upon cultivating something that they thought best, and denying to the consumer that which his taste demanded; and the result has been that the farmers of Kentucky and Ohio have reaped large rewards; and no part of our agricultural communities in all of our extended country is more prosperous and well-to-do than the white burley districts of the States herein named. These communities have no better soil or climate than large portions of Missouri, which, with the same care and attention, will be equally as profitable to our planters and more remunerative than any other crop production.

There has been a marked improvement in the quality of tobacco planted, and Missouri is likely to more than hold its own in the future in this, as in all other specialties.

PROSPEROUS FARMERS.

The constant increase of the mortgages on farms has been a subject for discussion for more than a decade by the American press, financiers and politicians. The people became alarmed at the tendency in this direction. No statistics had been collected on mortgages. Opinions differentiated, not only as to the aggregate for the several States, but

also the causes. The discussion formulated a demand by the people of the agricultural West and South in general, and by the husbandmen in particular, that Congress should make it a subject of investigation under the auspices of the Census Bureau, then about to be organized for the work of the decennial period. A law was passed, and the information was obtained. To Missourians it is no surprise to learn that, while our farmers are deeply in debt, they are, in comparison with their neighbors, much better off, the ratio between taxed and mortgaged acres being, in

Missouri	25.41 per cent.
Illinois	30.78 per cent.
Nebraska	58.16 per cent.
Iowa	46.95 per cent.
Kansas	61.56 per cent.

The per capita mortgage indebtedness is also in favor of our favored State:

Missouri.....	\$ 80 00
Illinois	100 00
Nebraska	126 00
Iowa	104 00
Kansas.....	170 00

The taxed acres in Missouri in 1890 were 39,671,240, of which 26,322,251, or 66+, were in the first four divisions of the State, and 13,348,989, or 33+, were in the combined territory of Southeast and South Central Missouri—the proportion being two to one. This proportion does not hold when the ratio of mortgaged acres is compared with taxed acres. During the years 1890 and 1891 there were mortgaged in Missouri 4,524,082 acres, of which 3,434,350 acres are in the first four sections, making 75+, while only 1,089,732, or 24+, are in Southeast and South Central Missouri—making a difference against the first four sections, and in favor of the last two, of a little more than three to one. It is reasonable then to conclude that if the last two sections named were as well adapted to agriculture as the other four, and as fully supplied with transportation facilities, the ratio between Missouri and Illinois would be changed, if it did not place Illinois in the most favorable light.

It is always more agreeable to dwell on the things favorable to one's State. Nothing would cause us to prefer truth to flattery, when the first may be against us and the latter in our favor, except the gravity of the question and the conscientious performance of a duty which so vitally affects the farmers, who constitute the majority of our population, on whose prosperity depends the welfare of all.

Comparing these ratios with the other States named, Nebraska, Iowa and Kansas, the showing would remain favorable to Missouri by any fair test. This can be accounted for because the farmers of this State have more accumulated wealth, our climate is more equable, our rainfall surer, our winters shorter and less severe, than Iowa or Nebraska; our soil is better, and we have less to contend with in the way of insects, blights and hot winds.

The following is the ratio the surplus for 1891 of each subdivision bears to the mortgages made in 1890 and 1891:

Northeast Missouri's mortgages are 40+ % of its surplus.

Northwest Missouri's mortgages are 38+ % of its surplus.

Central Missouri's mortgages are 30+ % of its surplus.

South Central Missouri's mortgages are 30+ % of its surplus.

Southwest Missouri's mortgages are 29+ % of its surplus.

Southeast Missouri's mortgages are 15+ % of its surplus.

The State Board of Agriculture recently addressed to the bankers of the State a circular asking as to the proportion of farmers among the depositors, and as to the prosperity of the farmers generally. Replies were received from two hundred and seventy-three bankers, representing ninety-four counties, and a few of the county summaries are given to illustrate how good a thing it is to till the fertile soil of Missouri.

BATES.—Farmers who manage their business as carefully as other business men are equally successful. Three-fourths of our depositors are farmers, and at least three-fourths of our deposits belong to farmers.

BUCHANAN.—The farmer who uses the same amount of well-directed and intelligent labor on his farm as does the ordinary artisan or laboring man of any class, is in better condition financially than those who work in cities, and, if his farm is free of encumbrance, or not too heavily encumbered, he should be more independent and live more comfortably than the majority of those in cities who own their own homes and are engaged in merchandising on a small scale. Missouri farmers are not obliged to borrow, and practically all borrowing and renewing of existing loans now being done is for the purpose of speculation, improvement or purchase of more land.

CALDWELL.—The farmers of the county are the best depositors we have.

CARROLL.—While seventy-seven per cent of our deposits belong to farmers, only twenty-five per cent of our overdrafts are with farmers. Three-fourths of the stockholders of this bank are farmers, and more want stock. All our farmers are prospering, many adding yearly to their land.

CASS.—The farmers in our county are, I think, in a much more prosperous condition than the merchants and others.

CHRISTIAN.—We have a prosperous lot of farmers.

CLAY.—The farmers of this community are generally prosperous and contented. We have twelve banks in the county supported largely by farmers.

CLARK.—There is twice the idle cash carried or held in pocket by farmers to that of other business men in this county. Farmers are our best depositors.

DADE.—It is safe to say that three-fourths of the money in our bank belongs to farmers.

STATE RECOGNITION.

DAVIESS.—Out of four hundred depositors three hundred are farmers, and making more money than any other class in the county.

LA FAYETTE.—Farmers are, as a rule, doing better than other classes. On an average the farmers make more money and save more than other business men.

LAWRENCE.—The farmers of this community have more loose money than all other interests, if it could be brought to light.

LEWIS.—The farmers are in better condition financially than ever before.

NODAWAY.—The farmers are the depositors in reality to-day. The farmers of this county get as large a per cent for money invested as any other class.

PERRY.—Take the farmer as a rule and they have more surplus money than any other class of men.

PIKE.—Country banks would not survive without the farmers.

RALLS.—If the farmers withdrew their business we could not run.

RANDOLPH.—Farmers are good bank customers, and, as a rule, are in better financial condition than any other class of men. Our most reliable business comes from farmers.

RAY.—Our best depositors are farmers.

SALINE.—This is an agricultural county; never fails to raise crops. People know nothing of poverty; spend their money like princes. The banks could not exist if it was not for the farmers' business and deposits. Farmers in good shape; best depositors we have.

SHELBY.—Farmers who use the same industry and economy are as successful as any other class. The farmers of this section are making money. Our farmer depositors are much more profitable than town people.

SULLIVAN.—The farmers in this community are making more money than any other class of men. A greater per cent of farmers are successful than of any other business.

VERNON.—Farmers are doing better than any other class of business men in the county.

In 1853, by an act of the Legislature, the Missouri State Agricultural Society was incorporated. During the same year a fair was held at Boonville, the most prominent feature of which was an address by Uriel Wright, of St. Louis, in which he pleaded for agricultural education.

A second fair was held in 1854, when Gen. James L. Minor delivered an address, strongly urging progressive and improved farming, and pointing out some errors in then existing methods, one of which—cultivating too much land—is still being committed by many farmers.

At the May meeting of the Society, a resolution was adopted memorializing Congress on the subject of agricultural education.

At a meeting held in October of the same year, the State Legislature was urged to direct the State Geologist to give special attention to the geology of the State in reference to agriculture. The third and last fair of the Society was held in 1855.

During the winter of 1864-'65, the Legislature created the Missouri State Board of Agriculture, the first meeting of which was held March 13, 1865. It continued its labors for ten or twelve years, but in 1877 fell into disuse. It was reorganized in 1878, and since that time it has had a somewhat checkered career.

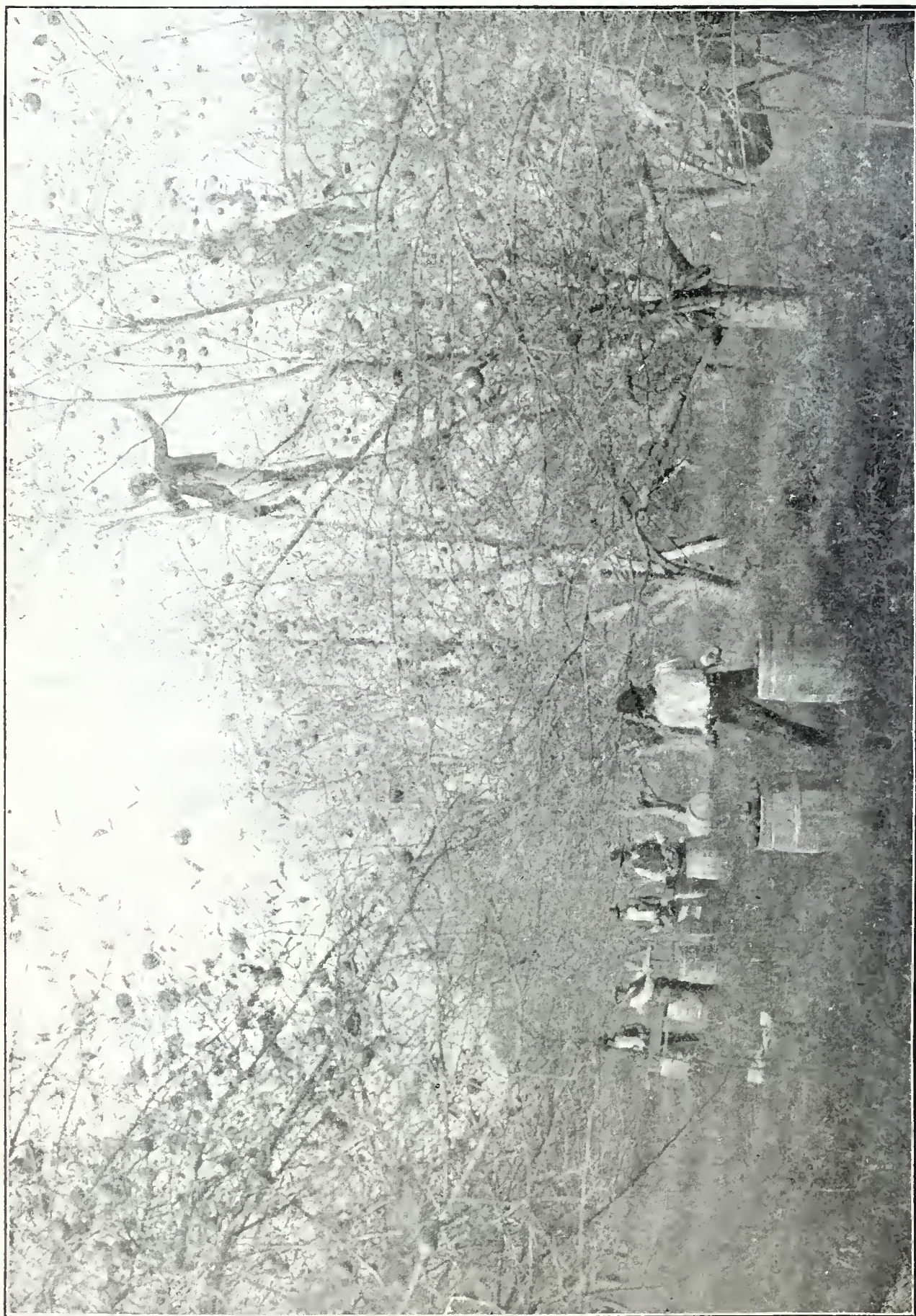
In 1882, J. W. Sanborn, then Dean of the Agricultural College, was elected Secretary of the Board of Agriculture, and continued in the office until March 1, 1889. Although his duties as Dean of the college left little time for outside work, he succeeded in greatly broadening that of the Board.

In 1882, the first Farmers' Institute was held, a movement which has been growing in extent and interest from that time, and which is destined to be a leading factor in the education of the farmers of the State.

In 1883, a system of monthly crop reports was inaugurated, and has been gradually developed and perfected, until, instead of printing 1,000 copies of each month's report, as at first, the Board is now printing and circulating 50,000 copies monthly to the farmers of the State.

During the summer of 1889, the Board established, in co-operation with the United States Signal Service, a State Weather Service, and has issued since during the growing season Weekly Weather Crop Bulletins.





A MISSOURI APPLE ORCHARD.

MISSOURI AS A FRUIT STATE.

[By L. A. Goodman, Westport, Mo., Secretary of the State Horticultural Society, and various contributors to the Literature of the Society.]

THE fruit industries of our State—where shall I commence, and how shall I tell you in one short essay, as I should like, all about the fruit industry in our State, scattered abroad as it is among nearly three millions of intelligent and industrious people; spread out over a territory larger than all New England, located in the heart of the Union of States and in the geographical center of the fruit-growing belt of the continent, with soil and climate so admirably adapted to fruit-growing as to place it in third rank as a fruit-producing State, and destine it, when fully developed, to lead all other States, and stand unexcelled in the industry by any like area of country on the globe. To do this subject justice would require a volume. And we think that the time is not far distant when we should have just such a work, showing up in detail the fruit industries of our State. This might be done in connection with a work of instruction to beginners in horticulture, as suggested by our worthy secretary in his last report, and made to serve a two-fold purpose—instruction to the beginner, and information to fruit dealers and home-seekers. The fruit centers should be carefully written up, and a record given of the large commercial orchards and berry plantations. In this way we could at once meet and answer the many questions propounded to us so frequently through long letters that are being received continually from east, west, north and south by our secretary and many others, the answering of which becomes a burden to the few engaged in the work.

When our secretary, last summer, placed the value of the fruit crop for the year 1890 at \$10,000,000, many doubted the statement—thought it too high. This started people to thinking and investigating, and after the apple crop was shipped, one official of the Chicago & Alton railroad reported the amount carried over his own road, and the other trunk lines through the State reported to him by their managers, at 5,000,000 barrels of apples, which, at \$2 a barrel, will make our \$10,000,000. Then add to this, if you please, our evaporated fruits, the product of our vineyards and berry plantations and other fruits, and who will for a moment doubt that the fruit industries of our State, last year, brought into the pockets of our fruit-growers and farmers at least \$15,000,000? This is certainly a fair showing and very encouraging—

especially so if we remember that the Missouri fruit crop never fails; that it is just as certain as corn, wheat, oats or any standard crop. Then, if we take into the account, as we should, and properly appreciate, the great economy, health, pleasure and refining influences upon our own people of having a constant supply of choice fruits, we find something of such intrinsic value as not to be computed by or exchanged for dollars.

In the near future you will see in no country home nor in any city market a lack of any fruit in its season, and the stalls will be full of the products of the market gardens. If any will not work he may starve, but for him who is willing to do his share there is no lack of any good thing.

South Missouri shall send to less favored regions the products of that peculiar soil of its vine-clad hills, where the land is genial with warmth and flowed with light; the peach from its sun-kissed plains where a myriad of trees bend beneath their load of perfumed fruit, as luscious as any that grows on earth and as fragrant as the flowers; all manner of berries, each in its season, are everywhere, and of them there is no lack.

All over the State, but best of all on the old lake beds, grow the apples that are for the five millions who toil in the mines, the furnaces, the shops and the factories. The orchards do not cover principalities owned by an aristocracy, but are beside the people's homes and are owned by families. Having fed the three millions of the people of Missouri, they are sending apples and apple products to all the earth.

FRUITS IN MISSOURI.

The people of this State, as well as other States, are now turning their eyes toward Missouri as the best fruit district in all the United States. Day by day is our work growing, little by little is our influence spreading, step by step are people coming, and acre by acre are our forests being turned into orchards. There is no wild impulsive movement, no great boom, no great speculation, but a steady, continual growth, such as shows a healthy feeling and a good work done. Had one-half of the talking and coaxing and blowing been done for our State that is done for many States or places, we would see

thousands more of people, but not near the sound, steady feeling which we now have.

Our World's Fair Commissioners were completely surprised when they were informed of the wonderful growth and possibilities of the fruit interests of the State, and consent was immediately given to allow more to the fruit interest than to any other one interest.

Did you wonder at our fruit crop last year? What will you say to that of this year? Strawberries in unbounded profusion; strawberries like hens' eggs—every one could eat them, eat them in plenty and enjoy them too. Raspberries such as were never known before, by the quart, crate, bushel, hundreds of bushels, until every man, woman and child could get their fill. Blackberries, large and luscious, in great abundance, and fit for a king to eat.

It gives a taste of fruit to thousands who otherwise would not get it, and thus causing them to use, as an article of food, some of the health-giving fruit, instead of so much of unhealthy and unnatural foods. This taste for fruit grows on them, and soon they will be using ten quarts where they now use one. You will find this taste for fruit thus growing all over our land, and thousands of bushels are now used where there used to be one.

Then the peaches: there never were finer peaches, or better, grown than were grown last year. They were scattered far and wide, north and south, east and west; they went from the Rocky mountains to the Alleghenies, from the Gulf of Mexico to the great lakes. Thousands upon thousands of bushels, carload after carload, were sent to the markets, and returns made in the shape of dollars.

Grapes, plums, pears, cherries, rich and luscious, grand and beautiful, supplied our markets in their season. Apples in abundance, apples everywhere, and good prices for all apples to Europe, to South America, to Mexico, to California, to the mountains; apples only such as Missouri can raise, handsome as no other land can make them, good as only our soil and climate can give; apples which bring \$20, \$40, \$80, \$160 per acre are gold mines such as the ground will give to those who know how to get the gold out.

What is the worth of our fruits? Ten millions will not cover the market value of those sold, and ten millions more is not the entire value of those used at home, evaporated or dried for market. Thirty thousand fruit farms or fruit-growers will not cover those wholly engaged in horticulture; 150,000 persons engaged in labor on these 30,000 farms are doing their best to give to the people good fruits at the lowest prices. Add to these 10,000 others who partly make it their business to grow and market fruits, employing 50,000 more, and you will see that we have quite an army of fruit-growers. Add to this those engaged in nursery-growing, the florists, the gardeners, the ornamental tree planters and landscape gardeners, and we will have another 50,000 employed in this work, and another \$5,000,000 will scarcely cover the value of their annual product.

THE FRUIT CROP OF 1891.

[Official Report of Secretary Goodman.]

Opening with a very wet season during the berry season, the supply was unprecedentedly large, and of course low prices were the result—not so much, perhaps, on account of the large supply, but because the wet weather caused them to be so soft that they would not bear handling well. Very many of our fruit-growers made the berry crop pay remarkably well, however, and they are inclined not to increase the planting, but to grow better berries and get better prices.

The cherry crop, especially the Duke and Morello varieties, was a very paying crop indeed, and this very palatable fruit is coming into more general use, as it should. There is scarcely a hill-top in all the State but can grow the Morello cherry to perfection, and no farmer should be satisfied with the old Morello cherry when he can just as easily have the E. Richmond, English Morello, Ostheim, etc.

The grape crop was very excellent indeed, in all parts of the State where "rot" did not trouble the vines. The experiment of the Government in destroying the fungus growth has been so well carried on by a Missourian that he writes: "I have no fear now of the grape-rot, for the spraying with the Bordeaux mixture has completely eradicated every bit of rot from my vineyard. I now can grow all varieties to perfection, and I say this positively, knowing the success I have had the last three years in experimenting with the mixture." The grape crop now annually amounts to many hundreds of thousands of dollars, and the time is near at hand when every one can eat grapes, and the best of grapes, too.

The plum crop is a growing one also, and of the Wild Goose varieties we now have a number which are proving valuable to the grower and the dealer. The crop was a full one only in places, and not general.

The pear crop and pear-growing is confined to special locations. About St. Louis and on the loess formation, they seem to be more at home than elsewhere in the State, and wherever they are grown they are a most profitable crop indeed. Pears, selling now from \$5.00 to \$6.50 per barrel, are certainly an incentive to the growers of this luscious fruit. Day by day we are finding choice locations for the pear where the dreaded blight seems not to do so much damage. The crop was a good one.

The peach crop was an extraordinary one wherever there were good orchards left. In many parts of the State peach-growing is about given up, but in the State of Missouri there are thousands of young trees bearing the finest peaches that ever grew in the whole United States. The peach crop was a very valuable one, and brought many hundreds of thousands of dollars to the State.

The apple crop is a good one on young orchards, and on orchards where they were not too full last year. Growing rapidly in importance every year,

it will not be long before the apple crop will be worth more to the State than any other one crop. Prices, of course, will not be high this year on account of the great supply of other fruits; yet I am sure good apples will bring fifty cents per bushel, and not long ere they will be worth \$2.00 per barrel on board of the cars at all our small towns. The fruit crop this year will bring much more than \$10,000,000 to the fruit-growers of the State, and there never was a time when our fruit-growers were in as good spirits as now, or had so much money as now. The fruit interests have grown at least 15 per cent the last year, and it will not be many years before Missouri's fruit crop will rival that of any other State.

OUTLOOK FOR ORCHARDING.

[By R. E. Bailey, Fulton, Mo.]

1. The consumption of fruit seems to be increasing faster than the supply. I know this is the case in our local market, and from the conversation of old people I learn that fruit formerly sold for much lower prices than it does now, and even at low prices much of it lay and rotted upon the ground or was consumed by hogs, or worse still, was made into cider and drunk by human beings whom it would not be polite to call swine. Some fruit even now may be wasted in various ways, but not for lack of demand. I venture to say that ninety per cent of the children of this town are now hungry for apples. The same would be true of adults were not so many tastes depraved by the use of tobacco, beer, whisky, tea, coffee and other poisonous stuffs called foods, drinks or medicines.

2. The outlook for the professional grower is better, for the reason that diseases, blights, insects and pests of various kinds have so increased that the ordinary mixed farming no longer produces, in many cases, its home supply.

When the country was first settled, the pioneer planted his trees, and they grew and bore fruit with little aftercare; not so now. Thousands of dollars are thrown away every year by men who try to do as their fathers before them did. I do not believe that one tree in ten that are planted ever grows to bearing size at all; and the one that does survive lingers along at a poor, dying rate, bearing poor, sickly, tough, wormy fruit, instead of the large, plump, fragrant, juicy apple, tempting to a saint, to say nothing of the common small boy.

3. Our location is favorable. The great Northwest is at our doors. It has a climate too severe for fruit-growing, and we can abundantly supply them if we improve our natural advantages.

Missouri, Northern Arkansas, a small part of Southern Iowa, one-half of Kansas and a small part of Nebraska is the great apple section between the Mississippi and the Rocky mountains. If we will grow good shipping fruit and distribute it at moderate prices, we need not fear over-production.

4. Past experience proves that good orcharding has paid. The apples shipped from this State in 1890 were sold for not less than \$10,000,000. The crop on

many farms in the western part of the State sold for more than the farms themselves would have brought the year before. I am only a beginner. In 1880 I planted a small orchard of Ben Davis that has already produced over \$250 worth of fruit to the acre, an average of over \$20 per acre per year, including the five years of waiting. In no single year have these trees had as good culture as an ordinary crop of corn. Three years they were not touched at all. I believe it would be very easy to double such yields. This year these trees made \$70 per acre.

MISSOURI ORCHARDS.

[“Ozark” in Cincinnati Enquirer.]

Those who have never seen a Missouri orchard in full bearing have yet to behold a very pleasant sight. The soil of South Missouri is not the conglomerate mixture formed in the region over which the glaciers expended their grinding and mixing forces, but it is composed of earth formed by the slow disintegrating process of changing the upper layers of rock to soil, supplemented by the results of centuries of grazing by vast herds of wild animals, and annual fires that consumed the vegetation which grew up in spite of the roaming herds.

The same condition of soil extends to the Arkansas river; and, as a matter of course, the apples and other fruits flourish there equally as well as in South Missouri.

The elevation in this part of the Ozark region is from 1,200 to 1,600 feet above sea-level, with some peaks and ridges running up to 1,800 feet or more.

This affords a cool atmosphere at night, with heavy dews in summer and autumn, and the bright, warm sunshine gives a beautiful color to the fruit, particularly to peaches and deep-red apples, like Winesap and other similar varieties. Iron enters into the composition of many of the rocks, and furnishes a good element in fruit soil.

This region was for a great many years the home of the buffalo and the Indian, and every year the prairie grass was burned off, and the soil supplied with an abundance of potash, of which element about 57 per cent of the ash of the solid matter of the apple is composed.

The combination of elements in the soil here, thus formed, is well suited to the production of fruit, and it is seldom that a failure in the crop occurs; and this year is no exception, for there is a good supply. If we enter an orchard and look around us, we shall find the trees are in good condition. The limbs branch out some four feet from the ground, the lower ones bending to the earth, and all are covered, even to the topmost twig, with tempting fruit; and the question at once suggests itself: “Was the original Garden of Eden located in South Missouri?” The trees are fairly shingled over, and present the appearance of complete pyramids of apples; and the sight is indeed a pleasing one, for it has the effect to almost bewilder the beholder, because of the great abundance; and this is a yearly occurrence if the orchard has a reasonable share of attention.

When South Missouri has an entire failure of the apple crop, there will hardly be apples enough in the other portions of the country to make one good apple pie, but the fact is, this region of country never has a complete failure in fruit, and every year large orchards are planted, and the time is near when the whole country can be supplied with apples from the Ozark region.

As a sample of the success of apple-growing here this season, one farmer will pocket \$13,000 for the apples on his trees, just as they are, while others will get as much for their apple crop as they asked for their farms six months ago.

MISSOURI'S CALL TO YOUNG MEN.

[By the Secretary of the Society.]

Our agricultural colleges are calling to-day all over the land for good botanists, entomologists, landscape gardeners, florists, and fruit and vegetable growers—in fact, horticulturists, which embraces all of these.

And so it is with the fruit interests; we want good, intelligent, enthusiastic, systematic, judicious fruit growers, on the cheap, rich, fertile lands of Missouri; men, and women too, who will plant good, large commercial orchards all over our State, who will use as much judgment, as much brain, as much money, as do our other business men, as do our cattlemen, horsemen, sheepmen, or merchants even, and then we will see this wonderful State of ours produce more fruit than is now grown by any State of the Union.

Our society has been the means of awakening an interest in this work, and has developed more investigation in the last few years by the fruit men of our State than has been accomplished in many years past.

Some of the work accomplished has been the awakening of a new interest, and of developing new material, or bringing out dormant material, and we trust that the good work has but just begun. We have shown the world that we can grow as good fruits as can be grown anywhere in the United States, and now we want to develop that interest more largely.

My friends, we of Missouri do not know the one-hundredth part of the capabilities of our State as yet. It is the aim and purpose of our society to let the people of other States know some of these capabilities, and then help to develop them.

In all the realm of labor or professions there is nothing so fascinating as the study of horticulture. There is something so attractive in the work that very few ever give up the study when once well begun, and then we see every man who has made his thousands in the busy cities look forward to the time when he can enjoy himself on a farm or in the horticultural field. We have then a glorious and wide-spread field open before us; one which needs investigation and study; one which presents the grandest opportunities for the student to enter; one which is just entering on the threshold of science; one which has few known laws and many chances for experiment.

The fact is simply that we are stepping upon a higher plane of horticulture year by year; we are learning new facts day by day; we are grasping some of the wonderful opportunities which are opening to our view; we are realizing the wonderful possibilities of our loved profession; we are beginning to see the magnitude of this fruit business; we see before us a field as broad as our land—avenues opening in all directions for the young men and women, and positions ready and waiting with no one to fill them.

Our State is getting to be a wonder to the Eastern people in the amount of fruit it produces, and it is going to be a still greater wonder. Not one-tenth of the fruit is grown that will be in the future. The great possibilities of our State are just beginning to be known. I believe that I am right when I say that our State will be the greatest fruit-producing State in the Union. I believe it possesses the soil and the climate for this very end.

The Ozark mountains and the southern slopes are to be a vast field for the orchardist. Here we have the mild climate, the height above the sea, the protection of the pine trees and the higher points of the mountains from the north winds, the protection of the woods from the southwest "hot winds," the best of water, the best of soil, the best of fruits, and consequently the best of health. The central has the river bluffs, the fine prairies, the rich bottoms, plenty of timber, plenty of prairie, to satisfy the most exacting agriculturist. Here the apple is a success, and the peculiar limestone formation gives the brightest colors to our fruits. The northern has much of the warm soil and the climate just suited to produce many of those northern apples that are justly celebrated all over the world.

THE SOCIETY'S WORK.

For one-third of a century has the society been meeting in annual sessions. Thirty-three years ago the society was organized for the same purpose that we now meet together. Some of the members of that first organization are still engaged in the same work. What these thirty-three years have done for Missouri we can all see in the growth of grand cities where there were none, in the opening of farms where there was nothing but wild prairie and timber, so that to-day we have over 300,000 strong farmers at work on our rich soils.

These thirty-three years have seen put upon Missouri soils over 8,000 miles of railroads; they have seen a thousand cities grow up and prosper in the 114 counties of the State; mines opened, the richest in the world, of lead, zinc, iron and coal; some of the finest quarries of stone that can be found anywhere. These years have seen the rich lands of Missouri covered with the finest farms in our whole country; the best horses, mules, cattle, sheep, hogs, poultry, grown anywhere in the whole United States. Instead of going outside of the State for our stock, to-day we see the other States coming to us for their fine stock, and to-day thousands of carloads are annually shipped to other lands.

These thirty-three years have seen the State increase from a few thousands of people, until now we have nearly three millions, and room for many millions more. Our fruit interests have grown from a few growers, and a few orchards, and a few fruit farms, and a few interested people, until now we have over 20,000 farms wholly devoted to horticulture, and 100,000 people wholly engaged in horticultural work, and more than another 100,000 partly devoted to this work.

Then there was no demand for quantities of fruit, and every farmer had but to plant the trees and gather the fruit. The trees seem to grow almost spontaneously and to bear abundantly. A few thousands of bushels of apples would supply the market, while now it takes millions of bushels.

To-day we have orchards which singly produce more than whole counties would then, and to-day we find that our fruit crop is worth over \$10,000,000 to our State. To-day we see orchards sell for \$6,000, \$8,000, \$12,000, and up to as high as \$100 and \$150 per acre for the apples alone. To-day we find the apple crop of the State worth millions of dollars. The small fruit plantations have grown as well, and now we see a ten, twenty, forty or eighty acres wholly devoted to small fruit-growing.

In vegetable gardening, in floriculture, in seed-growing, in nursery-growing, in roadside and yard-planting, in parks and cemeteries, in the study of the insect life, our friends and enemies, in the study of botany, of the rusts and mildews, in our agricultural colleges, in our experiment stations, in our horticultural press, in the reports of our State societies, in the experiences of our workers, in every avenue of study and thought, of experiment and experience, of practice and preaching, we find a wonderful development in the last thirty-three years.

If we have anything to be proud of, after being proud of our State, it is to be proud of the development of horticulture, until now we have avenues leading in all directions and open ways for any to follow, as well as great work still to do, and great studies still to be entered into, and great problems still to be solved.

So, then, we are no idlers in this world of work or study; we are no laggards in this onward rush and push of the age. We have plenty to do, and are doing it with a will and a way which means success. We have plenty of study and investigation and experiment, and are following it with the utmost zeal and energy, which means success. We are lovers of the work and the study, and expect to follow it to its final success.

We are trying to systematize all our efforts in the different lines of our work, and are accomplishing better work and more profitable. The florist has separated his work from the vegetable-grower, or the fruit-grower, or the nurseryman, or the seed-grower, or the landscape-gardener. The nurseryman is a nursery-grower, the fruit man is a small fruit-grower, an orchardist, or a vineyardist, or all together, but leaves off the nursery, the greenhouse or the vegetable-grower. Each part or department of this great

work is being put in its proper channel, and we find this a day of specialists.

There is enough for any man to learn in any one department of this work to engage the interest and attention of any one who wishes to enter in upon it. When once you begin the study or the practice of horticulture, you will find fields open up before you so broad that you will never fear of running across or exploring the whole of it, but you will begin to wonder how it is that there is so much to do and so much to learn.

The work of the society for the past year has been one of improvement and encouragement. We have now twenty-seven horticultural societies in different parts of the State, and some of them are doing good work for the members individually, and the society collectively, and the State work continually. In the following counties there are societies formed: Adair, Atchison, Barry, Bates, Barton, Buchanan, Butler, Camden, Cooper, Greene, Henry, Holt (2), Howell (2), Jasper (2), La Fayette, Laclede, Linn, Mercer, Montgomery, Pettis, Polk, Phelps, Ripley, Vernon, Missouri Valley Horticultural Society, Kansas City. Many of these are helping themselves and their county far beyond what they have any idea, possibly.

THE GREATEST FRUIT STATE OF THE WEST.

[P. M. Keily in Rural World.]

The magnitude of the fruit business in this State, or the value of the fruit produced each year, forms a subject but poorly understood here or elsewhere. New York is without doubt the first State in the Union as a fruit producer, and Michigan is generally regarded next. The facts and figures already accessible or visible give Missouri the third place, although Illinois, Ohio and other States will claim this honor. For the information which forms the basis of this article I am indebted, in a measure, to the Secretary of the State Horticultural Society, its President, and an extensive private correspondence throughout the State, and I am to no extent dependent on any wild or inaccurate guesswork. The great number of horticultural societies throughout the State are now disseminating valuable information of this character that is beneficial to all concerned.

To begin with, there are 5,000 or more fruit farms and 25,000 people employed on them in our State, and our annual crop is worth, in round figures, \$5,000,000. At first glance these figures may appear extravagant, but the more you study the reports from the various counties in the State devoted to this interest, the more you are convinced that the estimates are moderate ones. There are in the State nearly one thousand owners of what might be termed commercial orchards. There are scattered throughout the State hundreds of apple and peach orchards of 40, 60, 80 to 160 acres, and a number ranging from 200 to 300 acres. Our State differs widely from others in the area available for this purpose. Three-fourths of the counties in Missouri can produce profitably a great variety of fruits.

Missouri's fruit-shipping points are spread over the State, and this wide distribution of orchards and small fruits leads to the securing of a diversity of markets. There is no Western State having access to more paying markets. An outsider would naturally conclude St. Louis was the market for a majority of the products of the State, but quite the reverse is true. Hundreds of shippers find Nebraska, Colorado, Texas, Kansas, Iowa, Wisconsin and Minnesota the best markets. Kansas City is now a great distributing center, and consumes everything grown in the western part of the State, and draws heavily on other portions of the State for her needed supplies. Apple buyers from Baltimore, Philadelphia, Boston, Buffalo and other leading eastern markets traverse the State usually every other year, the off season east, for their supplies. It may seem strange, yet it is true, that apples, for instance, net the Missouri grower a higher price than the New Yorker gets for his. A full crop in New York means \$1.25 to \$1.50 per barrel for the best fruit packed on the ears. Better figures are obtained for the best fruit in this State, regardless of the crop here or elsewhere. Missouri can place her fruits in the Eastern markets almost as cheaply as Michigan, Indiana or Ohio, and far cheaper in the Northern and Southern States, which usually embrace the best markets. Therefore, in her relation to markets, a most important feature, she is admirably situated, for, while having access to all points, she is not specially dependent on any of them.

At least twelve fine fruit-growing counties, washed by the Missouri river, which passes through the heart of the State, find that great highway a cheap route to many good markets from the far North to the Gulf, and the State is now so well equipped with railroads that nearly every shipping point on the river is touched by one or more roads, affording favorable competition to distant markets. The six or seven counties located on the upper Mississippi, and embracing a magnificent fruit region, are equally favored in the matter of transportation, and ship annually an immense quantity of apples. In this territory we find the town of Louisiana, which ships annually 30,000 barrels, average crop. Clarksville, only ten miles away, 20,000. Further up we find Hannibal, which ships a larger quantity, and a dozen more river towns could be named that ship almost as freely. On the lower Mississippi we find four or five counties that contribute considerable apples, peaches and pears.

Passing to the western part of the State, adjoining Kansas, we find Bates, Vernon, Barton and Jasper counties all actively and extensively engaged in the culture of small as well as large fruits, and will, I learn on reliable authority, have 3,000 acres in small fruits, bearing the coming season. They are also planting freely apple and peach trees, grape vines, etc. In the southwest we find Newton, Dade, Crawford, Laeade, Lawrence and Greene counties planting liberally peach and apple trees, fruits that have

brought considerable money to that section of the State. Howell county, away down below the Ozark mountains, was unknown to fruit growers until a few years ago, when a trio of the most intelligent horticulturists in the State discovered the many favorable conditions existing there, especially for peach culture. Having ample means and practical experience, they embarked in the business on a large scale, and already peaches have been shipped from the county by the earload that netted the owners nearly a dollar a box. It has to-day the finest peach and apple orchards in Missouri. The peaches, protected as they are by the Ozark range on the north, rarely fail. Even if devoted wholly to canning, or used for evaporating or drying purposes, peach-raising there would be profitable. Howell has over 1,000 acres in peaches and a similar area in apples.

The most northern tier of counties, too, we find a fertile fruit region. Mercer county would hardly be thought of in this connection, yet she has 4,000 acres in apple orchards, and for outside markets had 12,000 barrels of apples the past season, Princeton alone shipping nearly that many. Adair county, with Kirksville as the leading fruit center, makes an equally favorable showing. Further along toward the northwest we strike the territory directly tributary to St. Joseph, a fine market and distributing center. Here we strike the Missouri river again, a valuable outlet to the far north for the several counties that are located along there and near valuable Nebraska markets.

Down in the swampy lands of Southeast Missouri we find the most extensive watermelon fields in the United States. Mississippi and Scott counties are famous for their melon crops. During the shipping season, the melon yield from this section supplies the entire Northwest, and for three or four weeks two solid trains loaded with melons start out daily over the Iron Mountain Railroad for their various destinations—St. Louis, Chicago and Kansas City being her three leading distributing points. It must be admitted from the foregoing, which only partly discloses the fruit resources of the State, that we here have something to brag of.

I will say, in conclusion, that from a number of private letters comes the information that, while fruit-growing is generally admitted to be the most profitable feature of farming, it is surprising how badly orchards are neglected—more or less of them in every county in the State.

The average farmer is so wedded to old methods it is hard to get him interested in commercial fruit-growing. It is clear that the business, favorable as the showing appears, is not yielding near what it is capable of doing, and will not, until that care and labor are bestowed on it which are devoted to the orchards of New York and other Eastern States. There is a wide and inviting field in Missouri, which, I believe, will soon be recognized by hundreds of enterprising cultivators toiling in less productive States at present.

FRUIT-GROWING IN MISSOURI.

[By G. C. Broadhead.]

The State of Missouri is much varied as to its topography, its geology and its flora. A line passing from the northeast to the southwest part of the State will leave most of the timbered land on the southeast, with chiefly prairie land on the northwest. The Missouri river, or rather from six to ten miles north and one half the distance from its mouth to Kansas City, is the dividing line between the chiefly hilly country to the south and the rolling land and prairies lying northwardly. Continue this line southwestwardly, and its approximate course would be from mouth of Lamine river southwestwardly via Sac river, Cedar county, Lawrence, and southwestwardly. East and south of this may be considered as belonging to the Ozarks. The soils of South Missouri are often silicious, sometimes sandy or else largely resulting from the decomposition of magnesian limestones, the latter assisting very much in promoting the fertility of certain tracts which otherwise would be sterile. In this region the hills often ascend by steep slopes to plateaus of thinner soil, on which the growth is chiefly post oak. But all of this region is capable of giving welcome returns in the shape of peaches, apples and especially grapes, as well as all of our other smaller fruits. The wild grape, as it grows upon the limestone slopes along the hillsides, is often large and delicious, proving the capability of the soils.

A large area of South Missouri contains deposits of iron ore, and I have noticed especially at the mines the additional luxuriant growth of vegetation, especially of the blackberry.

The sandy hills, or where the soil is flinty, silicious, and, of course, thin, seems to be the favored home of the huckleberry, of which I have observed three or four species, including the delicious blueberry, ripening in July.

The Chickasaw plum is indigenous to the valleys, and includes several varieties, shading from rich yellow to deep red.

The North and West Missouri region embraces an area of gentle undulations and rich soil, becoming richer in the northwest. The natural home of the strawberry was on these prairies. In other localities the blackberry and raspberry flourish, and, by cultivation, also flourish on the prairies. The strawberry, blackberry and raspberry are found throughout the State.

The Chickasaw plum is not found in Northwest Missouri, but flourishes in the eastern part of North Missouri.

The *Prunus Americanus* is found throughout the State, and includes sweet varieties as well as some that are disagreeable.

The persimmon does not grow west of a line passing northeast from Clay county, but is very common everywhere else. In Southwest Missouri it is very abundant.

The wild black cap raspberry grows nearly everywhere, being especially abundant in South Missouri, and will successfully bear cultivation.

The blackberry (two bush species) also seems at home nearly everywhere, especially on sandy soil. The dewberry is rarely found except on thin soil as a trailing vine. I would like to see it cultivated.

The first vineyards in Missouri were made in Gasconade county, between 1835 and 1840. When I first became familiar with them, about 1853 to 1856, the Catawba was the principal grape grown, with a few Virginia Seedlings. The grapes then sold readily at 20 to 30 cents a pound, and one could never tire of eating them. They possessed that quality above all others. One could eat apparently a great many, rest awhile and eat again with no inconvenience. All other grapes since raised seem to clog too soon. But, alas, the day for the Catawba in Missouri has past, and we have to take what we can get.

Vineyards were planted upon the hillsides at Hermann, where it was almost impossible to climb, and people accumulated wealth by raising the grape, and were as happy and contented as any people upon the face of the earth. The Hermann hills would bring to mind their native vineclad Rhineland hills. After Hermann it was not long before the vine was common upon the hills around Boonville, and then all along the Missouri and at many other localities.

These hills also seem to be well adapted for the peach, especially where the loess clays abound. Further north in Missouri is a little too cool for the peach.

North Missouri has largely supplied the market with apples. South Missouri has yielded well, but over that immense area until recently there were scarcely any orchards. Within fifteen years past I have traveled over some entire counties of South Missouri and seen neither a good apple orchard nor peach orchard, nor a vineyard, while I knew that their rocky hills and valleys were capable of enriching the owners and making them comfortable in the possession of good fruits. South Missouri needs development in this line. The owners of North Missouri orchards have derived profit from them, but in South Missouri it is only near the larger streams and occasionally near the railroads that the fruit industry stands forth.

The species or kind of fruit and character of that fruit, as well as its cultivation and returns to the producer, depend very largely on the soil and subsoil. These, also, in their several characters are determined by the underlying geological formation. The beds of solid rock, limestone, sandstones or shales of North Missouri are generally overlaid by deposits of drift clays, which are deeper in the north and east, becoming thinner to the westward. In Western as well as Southern Missouri, the underlying rocks give distinctive character to the soils. Hence the surpassing productiveness of Western Missouri. The drift of North Missouri varies from 20 to 100 feet in thickness, and, although sand-beds are often included, the predominance of clay-beds to

form a clammy soil and flat-topped ridge makes it unfavorable for growing either fruit or grain in very wet or very dry seasons. Where the under-clays are thrown out and mingled with the soil it is thereby improved, especially on account of the added lime.

PROSPECTS OF FRUIT-GROWING.

Ofttimes it seems to the fruit-growers that nothing has been done, as the year rolls around, in the way of advancing themselves or their cause. And yet no permanent growth ever was made rapidly, and we must ever expect it thus. We glance over the field of our work and we see so much to be done, so many obstacles to be overcome, so many insects to fight, storms, hails, frosts, cold, drouths, floods, too wet, too hot, too cold, too dry, so much work, and such small results often, that I wonder not we are often discouraged.

But look at the other branches of labor or capital, and decide if you will; your decision will not be against the fruit-grower. Look at our iron works, our machinery, manufactories, lumber trade, merchants, speculators, capitalists, carpenters, masons, painters, railroad men, commercial men, clerks in our stores, printers, lawyers, doctors. Ask each one of them if all is smooth in their business. All the work and worry of life in our large cities; the jealousies, the petty quarrels, the swindling, the cheating, the scamps and rascals who try to live by their wits, are not to be thought of in the comparison of even routine work and slaving day after day on the farm. Many thousands of our population would gladly give their all for the peace of mind of our farming community.

In Mississippi county they are growing the finest melons in the whole United States. Those low, moist, sandy lands of that county, rich in everything which will produce vegetable growth, seem peculiarly adapted to the growth of this fruit and vegetable. You will be astonished, I know, when I tell you that there will be thousands upon thousands of earloads of melons shipped from that county; and this is only a part of what will come from that Southeast Missouri which we look upon as a dreary, swampy country.

Then take the Missouri river points in shipping apples last fall, where we saw from many of our stations thousands of barrels of them sent in all directions. Many a little county sends out as many barrels of apples as it used to take to supply the Chicago market. Why, dear friend, other States may boast of their fruit lands (and they have them)—Western New York, a wonderful fruit district; Northern Ohio, another, a step or two west; the eastern border of Lake Michigan, another still, but of limited area; Southern Illinois, still another wonderful strawberry, small fruit, peach and apple area—so much so that thousands of earloads are sent to Chicago every year.

But for all these limited areas, when we come to Missouri we find tens of acres where there we see one; hundreds where there are tens, and thousands where

others claim hundreds of acres of land adapted to fruit-growing. We have all over our State an abundance of fruit lands which need only some one to go forward and possess them.

Do you think that the Ozark region of Arkansas is a grand apple country? Why we have thousands of acres of the same in Missouri, and ten times the amount Arkansas has.

Do you think Eastern Kansas has some fine fruit lands? Well, Missouri has a hundred times the same amount of good fruit lands; and so all around us. I tell you, I speak the truth in soberness, when I say that there is no State in the Union which possesses so many acres of fine fruit lands as does Missouri.

In my lifetime I have been in over twenty different States, from the Atlantic to the Pacific, and from the Gulf of Mexico to the Northern Lakes, and every time I go and see I come home and say, here right about us we have the best, the grandest, the noblest of them all. Proud of Missouri! Of course, why not be proud? If our people only realized one-tenth part of their possibilities, and would let the world know them, you would see such an influx of people as would astonish you. Yes, proud of Missouri; may we ever be proud of the good old State, and never for once let man, woman or child, fish, fowl or animal, trees, lands or water, animate or inanimate things, say or do aught against our good home in this the center of the United States.

MISSOURI FRUITS AND MISSOURI LAND.

[By G. W. Hopkins, Springfield.]

In the beginning, I take the position that there is not a county in the whole State of Missouri but that will produce some kind of fruit. Of course some kinds are brought up to a higher state of perfection in some localities than others, owing to difference in soil, latitude and climatic influence. Apples, pears, plums and the small fruits are grown successfully in most all parts of the State. But the home of the peach is on the southern slope of the Ozarks. Here, nature has established a barrier against the bleak, wintry winds which sweep over other portions of the State, generally killing the fruit, and often the trees.

In the Ozark region the peach crop is rarely a failure. The fruit ripens up in all its perfection, colors beautifully, and the quality is unsurpassed. Missouri fruits now have a national reputation. The exhibitions which have been made by the State society on several occasions have been an object of wonder and admiration to all who have seen them. No grander display of fruit was ever witnessed on the American continent than that shown by Missouri at the World's Fair at New Orleans, and last year at St. Louis. And so we might say of the many displays made by our local societies at different fairs over the State; though on a smaller scale, they were just as good, so far as they went.

I am firmly of the opinion that the exhibition of fruits made by the horticulturists of Missouri has done more to advertise the State than all the chambers of commerce or immigration societies ever organized within her borders.

Apples, peaches, pears, plums, apricots, quinces, grapes, cherries, strawberries, raspberries, blackberries, gooseberries, currants, dewberries, huckleberries, all grow in Missouri. Figs were ripened this year in the vicinity of Springfield on the farm of Mr. Haseltine. I would not, however, advise any one to raise figs as a matter of profit. I simply allude to this to show what can be done, and in connection with other things to demonstrate the great possibilities of the State.

I am proud of one thing, that on account of her great and varied natural resources the people of Missouri have always been self-sustaining. History gives no account since the formation of her territorial government of her citizens having to beg for the necessities of life.

Lands in Missouri are as cheap, if not cheaper, than in any other State in the Union. Good farms of unsurpassed fertility can be bought a few miles away from the cities and towns at from \$15 to \$50 per acre, according to improvements. In South Missouri there are yet thousands of acres of government land subject to homestead and entry at \$1.25 per acre. Millions of acres of good fruit land can be bought at from \$2 to \$5 per acre. Who would be without a home when one can be purchased so cheap?

There are many portions of South Missouri that have been comparatively unknown until within the last few years, to the outside world. The impression prevailed abroad that this section of the country was nothing but a pile of rocks, and unfit for the habitation of man. But this delusion is fast passing away. Men of experience, capital, brains and pluck have bought lands, planted largely to fruit, struck a bonanza, and demonstrated beyond a doubt the vast possibilities of South Missouri. Immigration is coming in by the thousands annually. Lands are being taken up rapidly, and the time is coming when cheap land in Missouri will be a thing of the past.

Let us proclaim from the mountain tops, from the hillsides and along the valleys, that grand old Missouri stands to-day as the peer of any State in the Union. That she has more good, fertile lands, raises more and better fruit, more minerals and has more good-looking women than any other commonwealth in the great republic.

GROWTH OF FRUIT-GROWING.

[By L. A. Goodman.]

Twenty years ago, even in the suburbs of Kansas City, there were very few orchards, gardens or small fruit plantations, and even if there had been, there would have been small market for any great surplus. I well remember the first year I began clearing my

ground and planting out the berries and orchard. Right next to me lived an old man, one of the first settlers of the community, who had been living there for forty years. Every day he would come over where I was at work and watch with curious eyes everything I was doing, from the planting of the strawberries, raspberries, blackberries, on the fruit farm, to the ornamentation of the front yard with hundreds of evergreens. "Well," he said one day, "you are the biggest fool I ever saw. I have been here forty years, and all that time I have been busy cutting down and plowing up just such things as you are planting. You may depend upon it that you will never make a dollar out of all this nonsense." But he lived to see a wonderful change in all this, and even planted some trees, grapes and evergreens on his own place.

Since that time, when a few hundred cases of berries would supply the whole market of Kansas City, until the present, there has been a gradual growth of the fruit interests all over our country. And what a wonderful change has there been all over our State in the last twenty-five years. From a few hundreds of acres of orchards and small fruit gardens then scattered over our State, mostly along the Missouri river, now we see hundreds of thousands of acres everywhere, until even the Ozark region of South Missouri is being covered with some of the grandest fruits the country or the world has ever seen.

Twenty years ago I traveled through some portions of the State on horseback, and often it would be five, ten, fifteen miles between houses, and scarcely an orchard to be found; but now you will find this same beautiful land covered with happy homes and orchards in abundance. Then it was said by those who planted trees that their apples and peaches brought only 25 to 50 cents per bushel, and when the orchards now being planted came into bearing they would not be worth gathering. I have seen the time in Michigan when apples sold for 10 cents per bushel and yet five years later, when there were ten times as much fruit, they sold for 50 cents per bushel.

I bought apples and peaches when I came to Missouri for 25 to 50 cents per bushel, yet this year peaches sold for from \$1 to \$3 per bushel, while apples are now bringing 75 cents to \$1 per bushel. The fact is, the more you can get people interested in this fruit business, the more will the masses consume, and we will have a demand for all we can raise.

As has been the growth in the small fruits, grapes, peaches, pears, apples, so has it been in the vegetable line, among our flowers, with the ornamentals, and the only thing we are now lacking in is the plan of marketing and the cost and means of transportation. Our transportation problem is the one serious question which now confronts the fruit-grower. There are markets in abundance all over our land, if we but had the means of reaching them.

It will take every member of our society and every fruit-grower interested to settle this matter. When we see such organizations springing up as the one just organized at Carthage, with the sole object of securing

transportation rates to the various markets, when they bring these facts to bear upon our express companies, with statistics of what they will probably have for shipment, when they show these companies that it is so many thousand pounds shipment at a low rate and nothing to ship at the high rate, then we shall see the companies giving aid and assistance in every way possible. Quick, cheap transportation is the one thing now to be desired for the fruit-grower; this, with the honest commission man doing his work well, and you can scarcely realize what an amount of fruit could be and would be grown. But of these we shall have a report from our transportation committee, and then discuss them.

And what of the ornamental in the past? Outside of the cities, and large cities at that, we saw very little of flowers or ornamental planting. But now you will in many of our villages and on our larger farms see indications of landscape gardening or planting in a judicious and systematic whole. It is a long step in the right direction where we see such yards and lawns as are seen in many parts of our State. Where we used to see one or two straggling evergreens trimmed up like a street tree, now we see hundreds of them scattered everywhere.

In our rush for fruit-planting, I beg of you, friends, that you forget not the ornamenting of your grounds. But we see a general awakening everywhere in horticulture in all its phases, branches, divisions or departments. You will see improvements in our land and its manner of cultivation, a change in our class of tools and horticultural contrivances, a difference in manner of propagating and of the amount propagated, a contrast in the orchards as now planted for commercial purposes with those of twenty-five years ago, new ideas about care, cultivation and pruning our orchards, a much-needed change in the number of varieties now necessary in a commercial orchard, no fear now of having too many apples in any one place.

I wonder if we people even begin to comprehend the wonderful possibilities of this great State. If I should tell you that the last few years have seen the fruit interests grow from a few hundreds of thousands of dollars up to millions, you would scarcely appreciate the value of the statement. But when I tell you that men from all over the North are now daily seeking every apple they can find, at prices beyond our asking, you will see that we have had some fruit to sell.

Did you ever see such fine peaches, pears and apples as have grown this year in South Missouri? Here among the hills of the Ozarks we find some of the best fruit lands in the United States—not only apple lands, or peach lands, or small fruit gardens, but fruit lands embracing all of these.

Well, these cheap, poor, neglected, stony, red lands are worth much more than the lumberman thinks, when he is cutting off all the timber fit for lumber, ties or posts. He is taking the first crop off

of it, but there will be another crop to be taken off in a few years, which will enrich the people instead of making them poorer.

Do you know that the peach region of Delaware and New Jersey and Maryland is fast being hemmed in on all sides, until there is but a small portion, a very small portion of the original lands now left of the famous peach region?

But right here we are in the midst of what is destined to be the greatest and grandest peach region of all the country. This red soil, these high hills, the rocky, mountainous, flinty lands, rich in all which will make tree growth, has been hidden away in this southern land long enough.

It is our province to let them be known, and we are doing this by our fruit shows, by our State society, by our local societies, by our individual efforts, and by the results shown from some of our orchards, and by the fruits now on the tables.

All in the world this land wants is some men of intelligence and grit to develop them, open them for settlement and improvement. From every county of this special region comes the report over and over again, "come and see our apples," "our peaches," "our berries." Before this land is one-tenth as well developed as are the famous peach regions of Delaware, it will be known worldwide.

I do not speak disparagingly of any portion of the State when I say what I do about this district. Our State as a whole is ahead of any other State of the Union.

Do you want blue grass lands? Here you can find them along the Missouri river equal to those of noted Kentucky. Do you want meadow lands? You can find them in the northern part of the State equal to those of Michigan. Are you seeking rich farms? You will find our rolling prairies equal to the flat lands of Illinois. Will you have tobacco lands or hemp lands? Along the Missouri river you will find the bottoms equal to those of Virginia in her best days. Are you after fine horses? Look about you. Do you need an extra fine mule or jack? Here you can get them. Vermont has fine sheep, we have better. New York has grand cattle, we have grander. Do you seek a mine of coal, iron, zinc, paints, lead? Nowhere in such abundance as in Missouri. Are there fine quarries of stone? We have the best of limestone, granite, sandstone, marble, onyx. Do you wish health-giving springs? All over our State they are in abundance. Are you seeking pine? Our south country is filled with it. Are there wagon or bridge timbers in Indiana? We have them more abundantly. Would you see beautiful prairies? Here they are. Can others grow grains? See the abundance of corn, wheat, oats, barley, rye, hay, flax, timothy seed, clover, hemp, tobacco, potatoes, cabbage, celery to rival that of Kalamazoo, strawberries, raspberries, blackberries, grapes, pears, peaches, apples, as fine as ever were seen. Would you have me say more? Nay, but I would never get

through telling of the advantages of Missouri in soil, climate or productions.

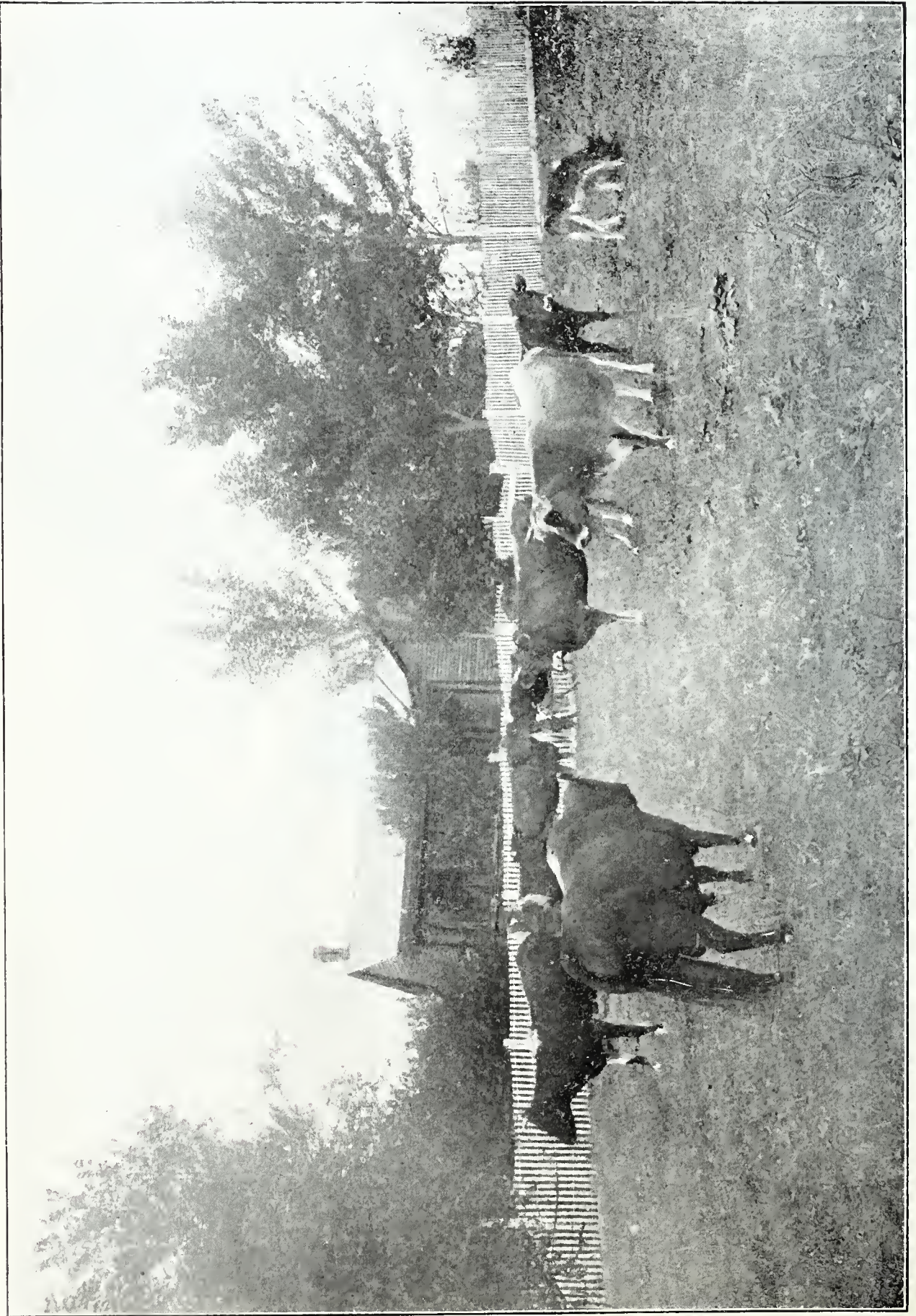
And of all this western horticulture, what is the part our society should play in its development? While our western horticulture is distinct and special in its work and development, our State societies have caused them to be so.

It is necessary, in all the peculiarities of this great business, for our State society to do her part, and she is ready to give her aid wherever it is found neces-

sary to do so. In many of these business enterprises it is not her province to take control of them, but to assist every organization in accomplishing all ends which are for the best interests of the fruit-grower.

I see here about you the apple orchard of America, as famed as are the raisin fields of Fresno, or the wine fields of Woodland, or the orange groves of Riverside, or the pear orchards of San Jose, or the plum plantations of Vacca valley; and our peach orchards rivaling those of Delaware and Maryland.





BRED IN MISSOURI.

MISSOURI LIVE STOCK.

AND if Missouri stands in the front rank in agriculture and horticulture, it is at least as successful in stock-raising. St. Louis, Kansas City and St. Joseph are notoriously good markets, and the farmers of the State are fully alive to the fact that there is money in stock, and especially in high grades. As already mentioned, the blue grass of Missouri is abundant and luxurious, and there is produced a wealth of corn, oats and other feeds, of which immense quantities are fed to stock. If it be asked in what counties stock is raised, the answer must be all, for it is a fact that the industry covers the entire State.

A live stock census is notoriously difficult to take, and it takes some years to complete. The most authentic census of this kind was taken in Missouri some three years ago, and although the increase since then has been very large, the tables are given as an index of the distribution of this important industry.

NORTHEAST MISSOURI.

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
Adair	8,164	975	23	28,200	13,186	7,202
Audrain	11,226	3,487	172	32,837	21,957	9,598
Clark	8,697	1,122	19	24,445	12,317	7,442
Knox	9,030	1,095	31	25,803	20,335	6,389
Lewis	8,265	1,812	75	22,657	16,995	7,225
Lincoln	6,340	1,402	39	23,631	23,180	7,589
Linn	11,397	1,418	30	40,950	19,607	7,616
Macon	12,984	3,395	146	45,948	24,990	9,043
Marion	7,800	1,216	27	17,478	19,240	7,575
Montgomery	6,635	2,089	53	18,826	20,031	6,903
Monroe	10,808	3,929	211	30,743	29,813	16,596
Pike	7,918	2,432	72	27,350	18,130	11,926
Putnam	10,044	1,206	34	34,798	17,946	10,723
Ralls	6,011	1,563	61	22,882	16,648	7,893
St. Charles	5,474	3,398	27	15,143	25,938	4,885
Schuyler	7,411	726	24	23,706	12,736	22,095
Scotland	11,281	989	46	29,063	12,868	8,107
Shelby	9,464	2,294	81	24,489	31,160	13,344
Sullivan	11,443	1,624	36	52,404	18,687	8,546
Warren	3,399	1,827	18	12,938	15,960	5,707
Total	174,094	38,359	1,225	554,291	391,724	160,407

SOUTHEAST MISSOURI.

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
Bollinger	3,936	1,407	38	13,372	29,626	7,388
Butler	1,717	637	15	8,925	16,058	1,124
Cape Girardeau	5,564	2,146	44	13,109	30,342	9,206
Carter	834	455	4	4,253	5,649	668
Crawford	3,266	1,638	53	13,398	14,741	7,776
Dent	3,323	1,258	35	14,852	16,869	9,156
Dunklin	3,698	1,792	22	16,212	19,870	1,259
Franklin	6,647	3,343	35	21,030	30,791	7,488
Gasconade	2,895	2,052	20	11,916	13,411	5,349
Howell	3,765	1,756	31	18,902	23,855	6,075
Iron	1,562	763	4	5,846	1,561	1,977
Jefferson	4,890	2,412	27	16,437	19,895	5,533
Madison	2,489	850	42	8,474	11,741	3,407
Mississippi	1,946	2,419	14	9,390	13,585	216
New Madrid	1,634	1,785	13	8,554	13,307	619
Oregon	2,029	807	10	9,317	16,601	2,599
Perry	4,195	2,061	17	10,367	24,783	6,874
Pemiscot	1,495	847	8	7,953	11,042	334
Reynolds	1,718	1,016	10	9,390	12,557	5,384
Ripley	1,976	838	8	10,247	16,138	3,350
St. Francois	2,856	1,124	35	9,200	7,568	2,334
Ste. Genevieve	2,612	833	10	6,990	10,470	2,374
St. Louis	6,131	4,044	.....	13,419	17,502	2,116
Scott	2,649	2,284	17	11,757	19,355	827
Stoddard	4,226	2,044	27	15,470	3,169	2,999
Texas	5,722	1,500	60	22,936	27,313	11,146
Washington	2,563	1,335	13	11,933	8,205	3,508
Total	86,337	43,446	625	323,649	441,002	111,086

NORTHWEST MISSOURI.

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
Andrew	11,814	2,114	127	67,688	59,996	2,256
Atchison	9,722	2,671	57	37,153	42,969	1,835
Buchanan	9,634	3,370	67	20,400	26,179	3,186
Carroll	12,873	4,140	61	38,951	43,640	2,436
Caldwell	11,160	1,393	32	29,745	31,288	15,303
Clay	7,712	1,729	65	23,114	26,149	5,445
Clinton	9,533	2,026	52	36,409	44,009	5,875
Daviess	14,164	2,017	56	41,042	42,151	13,024
De Kalb	9,445	1,263	32	28,984	24,972	3,089
Gentry	12,205	1,172	50	39,465	29,259	8,458
Grundy	7,213	1,063	46	39,384	11,954	17,350
Harrison	16,163	2,010	70	63,142	39,441	11,170
Holt	7,547	2,226	26	22,708	36,786	526
Jackson	20,088	3,891	.....	27,177	35,818	6,331
La Fayette	10,880	4,324	72	27,795	26,600	3,118
Livingston	10,208	1,497	42	32,935	26,345	12,329
Mercer	9,775	811	27	41,874	20,741	7,263
Notaway	20,444	2,354	42	64,242	60,118	2,286
Platte	6,774	2,055	51	19,294	23,412	1,944
Ray	10,653	3,943	87	33,110	36,922	5,717
Worth	6,446	447	27	20,124	15,057	2,463
Total	234,509	46,506	1,092	756,737	703,810	134,204

SOUTHWEST MISSOURI.

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
Barry	6,764	2,340	65	20,554	27,781	6,889
Barton	8,763	2,240	66	33,396	18,095	3,397
Bates	15,518	3,399	101	34,808	68,496	3,684
Cass	14,455	3,714	74	29,810	46,257	2,913
Cedar	7,460	2,054	59	22,080	26,088	4,771
Christian	5,104	1,425	56	13,774	24,075	3,177
Dade	7,996	2,211	45	24,138	27,685	4,356
Douglas	4,281	959	33	13,696	20,415	5,770
Greene	11,671	3,476	80	25,871	34,732	5,083
Henry	11,346	2,756	86	31,180	27,298	2,530
Jasper	12,375	2,763	39	32,008	22,913	4,540
Johnson	11,517	3,311	68	25,163	35,453	3,191
Lawrence	19,055	3,245	74	23,740	28,053	4,146
McDonald	4,065	1,280	25	12,421	18,149	5,339
Newton	7,911	1,740	32	21,535	17,440	3,429
Ozark	2,718	785	18	12,116	11,494	3,308
Polk	9,162	3,231	137	25,433	28,792	10,004
St. Clair	9,520	1,754	45	30,141	27,972	5,078
Stone	2,560	914	32	11,011	13,385	3,207
Taney	2,630	590	24	10,619	11,988	3,797
Vernon	15,128	3,486	136	38,552	28,978	2,646
Webster	5,413	2,011	57	16,096	17,066	8,489
Wright	4,831	1,335	47	16,076	18,919	8,894
Total	191,303	50,959	1,399	524,218	716,990	108,568

CENTRAL MISSOURI.

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
Benton	7,227	1,782	72	26,330	19,158	6,638
Boone	7,902	3,246	140	20,349	22,675	8,349
Callaway	9,282	4,136	209	25,637	27,430	19,560
Camden	3,702	1,068	18	16,760	16,512	5,539
Chariton	10,364	3,304	77	37,451	35,678	6,029
Cole	3,383	1,377	30	10,002	14,651	6,672
Cooper	7,497	3,698	85	21,234	32,564	17,409
Hickory	5,160	1,146	26	1,773	16,975	5,731
Howard	5,540	2,540	67	16,775	24,068	9,726
Laclede	4,183	1,222	31	19,095	20,853	6,065
Maries	3,226	1,698	48	16,242	17,193	7,745
Miller	4,299	1,780	28	19,754	26,427	9,979
Moniteau	6,640	2,337	64	17,702	20,022	6,143
Morgan	4,744	1,926	81	17,077	12,820	7,926
Osage	3,144	2,837	29	14,827	17,313	7,766
Pettis	10,183	2,863	64	29,952	19,746	10,450
Phelps	3,566	1,291	70	14,896	14,650	7,320
Pulaski	3,181	811	12	14,215	17,479	5,232
Randolph	7,814	2,170	135	13,231	16,667	9,647
Saline	12,553	5,730	185	38,359	30,236	5,556
Total	123,440	46,872	1,471	391,661	433,116	168,880

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
Total for State.	809,647	226,124	5,812	2,550,556	2,686,642	675,763

SUMMARY.

	Horses.	Mules.	Jack Stock	Neat Cattle.	Hogs.	Sheep.
N. E. Mo.....	174,094	33,359	1,225	554,291	391,724	160,407
S. E. Mo.....	86,337	43,446	625	323,649	441,002	111,086
N. W. Mo.....	231,509	46,506	1,092	756,737	703,810	134,204
S. W. Mo.....	191,303	50,959	1,399	524,218	716,990	108,568
Central Mo..	123,440	46,872	1,471	391,661	433,116	160,880
State.....	809,647	226,142	5,812	2,550,556	2,686,612	675,763

These figures, while not by any means a full record of the number of stock to be found on Missouri farms, show how thoroughly the importance of live stock raising is appreciated in Missouri, and how every county takes a part in the good work. The ex-Labor Commissioner, Mr. U. S. Hall, ascertained the number of animals shipped from the various depots in the State during the year 1891, and from these figures a table has been compiled for this work, showing the total shipments in detail from each county. (See pages 51 and 52.)

The data from which this table was prepared are admitted to be incomplete, and no matter how accurate they were, they could not show the actual total shipments. Thousands of cattle, horses and hogs are driven into the leading cities by road, and no record can be obtained of these. But it is a grand State that can prove shipments in one year of over 2,000,000 hogs, over 600,000 head of cattle, nearly 200,000 sheep, and 66,000 horses and mules, to say nothing of the especial triumphs in smaller lines and grades.

Long experience and careful estimates of the cost of land, and the amount and cost of forage necessary to raise and fatten the different kinds of stock for market, justify the positive assertion that horses, cattle and hogs can be raised and fattened for one-half of what it costs to do the same in the Eastern and Middle States, while sheep can be raised for one-third. There is no State so advantageously located with respect to good markets and nearness to consuming centers, and having at the same time such cheap and fertile lands, and where the cost of raising, fattening and getting them to market is less than right here in Missouri. The surface, the soil and the climate of the State are such as to be conducive to the health of all farm animals.

The shipping facilities in all directions are unsurpassed, both by water and rail. The great trunk lines of railroad cross the State east, west, north and south, putting all sections in direct communication with the seaboard and great interior markets.

To the southwest of St. Louis there is a region well watered, well timbered and shaded, clothed with nutritious grasses, where cattle can be herded and driven gradually southward to winter in the cane-brakes of Arkansas, and in spring to return upon the growing grass, until they are within one day's journey of their market; or where shelter can be easily and cheaply supplied, and crops raised in the valleys cheaply bought for feeding cattle during the winter if that should be desired; where supplies are quickly and cheaply reached; where there is no triangular fight between settlers, cattle men and sheep men; where

herders would be welcomed as buyers of stock and crops, and where their early lambs and calves could be cheaply and quickly marketed.

The success of dairying in Missouri has been fully tested. Natural yellow butter of the very best quality is made throughout the year. A prominent and intelligent butter dealer and dairyman, who has had fifteen years experience in New York, and twenty years in Missouri, expresses the decided opinion that this, as a dairy country, surpasses New York, Ohio or Wisconsin. He thinks the climate more favorable, the grasses better and the easy butter-making period much longer, while the support of stock costs much less. North Missouri is washed by innumerable rivulets, creeks and small rivers, with rapid currents. The timber and prairie lands are in about equal quantities. This whole country is undulating and has a soil of extra fertility.

Disease very seldom troubles the Missouri stock-raiser; indeed, he is remarkably fortunate in this respect, and is envied by less fortunate farmers in other States. With all the hundreds of thousands of stock raised and fed in the State, less than 300 cases of disease were discovered in the whole of the year 1891. They were distributed as follows:

	Glanders or farcy.	Texas fever.	Black leg.	Big jaw in cattle.	Swine plague.	Mad itch in cattle.
Northeast Missouri	2	1	3	17	14	1
Northwest Missouri.....	3	4	9	9	24	2
Southeast Missouri.....	3	2	8	4	50	3
Southwest Missouri.....	5	1	8	9	28	1
Central Missouri.....	3	1	14	14	33	.....
Total for the State.....	16	9	42	53	149	7

During the last quarter of a century a most gratifying improvement has taken place in the breed of cattle kept in the State. The old scrub cow of "befo' the war" times is not now held in favor, and in thousands of instances it has been so improved by judicious crossing and the constant introduction of new blood, that no one would recognize it as being in any way connected with or descended from its attenuated, ill-favored ancestor. Shorthorns, Holsteins, Herefords, Aberdeens, and other best approved breeds have been used for this purpose, and in pursuance of the breeding-up policy, until, as already intimated, there is little left to call attention to the breed which at one time was regarded as good enough for the average farmer. Without exaggerating, and with no desire to underrate the good work done in other States, it must be stated as a fact beyond dispute that there are few States in the Union where the average cattle standards are approximately as high as in Missouri. The highest price ever paid for a bunch of cattle was received by a Missouri feeder and breeder, and hundreds of exceedingly valuable prizes have been received as a result of the good judgment and skill of the live stock men of the State.

TABLE OF SHIPMENTS FOR 1891.

COUNTY.	Head of Cattle.	Head of Hogs.	Horses and Mules.	Head of Sheep.	Mixed Live Stock (Cars).	Poultry (Pounds).	Eggs (Dozen).	Fish.	Meat.	Game (lbs.)
Adair.....	4,342	18,360	540	402	11	208,528	250,170			
Andrew.....	8,140	34,860	800	240	2	75,132	28,740			
Atchison.....	30,246	47,220	160	2,800	5	23,200	18,450			
Andrain.....	12,280	46,020	5,180	12,080	115	765,019	326,220			
Barry.....	220	2,340	140	720	163	101,135	116,790			
Barton.....	9,700	24,180	1,064	240	25	90,726	54,180			14,990
Bates.....	14,720	39,780	903	480	55	435,368	291,690			
Benton.....	3,660	38,220		1,840	46	124,234	120,180			
Bollinger.....	660	1,860		640	25	92,594	71,100			
Boone.....	11,720	45,526	2,183	5,937	25	904,284	374,790			
Buchanan.....	4,036	22,650	580	5,920		7,460	107,649			
Butler.....	80	304					6,690			
Caldwell.....	14,221	50,040	1,420	2,160	39	406,666	145,020			
Callaway.....	4,086	18,574	667	6,162	34	314,146	73,680			
Camden.....	480	1,800		400	42	11,372	14,070			17,657
Cape Girardeau.....	1,020	4,164	81	1,120	7	267,159	131,670			
Carroll.....	20,868	55,140	530	720	13	238,468	37,470			
Carter.....	220	240				250	300			
Cass.....	14,666	35,400	600	1,280	811	412,902	177,960			32,944
Chariton.....	9,960	34,440	500	800	24	164,297	113,520	7,033		7,556
Christian.....	1,000	5,220	20	1,680	151	700,305	234,840			
Clark.....	5,593	19,763	564	836	2	685,165	126,030			
Clay.....	15,222	44,681	2,100	4,080	33	122,076	90,720	8,810		
Clinton.....	16,300	49,087	1,060	2,414	4	226,777	20,730			
Cole.....	901	10,762	106	777	47	67,475	145,350			
Cooper.....	6,637	37,923	633	3,200	71	217,008				
Crawford.....	401	1,140	80	680	34	272,570	278,580			
Dade.....	2,660	12,840	360			131,415	60,630			16,505
Davis.....	10,940	37,320	1,203	2,320	78	925,404	76,500			
De Kalb.....	7,380	28,320	285		11	437,770	15,180			
Dent.....	1,120	1,500	20	1,040	52	85,275	51,270			
Dunklin.....	740	1,020			3	9,000	10,620	72,000		
Franklin.....	6,153	15,264	424	1,754	315	613,179	999,180			
Gasconade.....	460	5,954		333	4	149,789	455,460			
Gentry.....	12,444	39,180	450	960	30	152,978	36,000			
Greene.....	4,165	17,100	2,561	8,640	212	266,840	224,070			
Grundy.....	10,610	28,800	440	1,840	2	153,058	51,450			
Harrison.....	11,360	37,440		1,260		131,183	3,570		1,812	325
Henry.....	18,321	40,800	585	1,520	377	240,699	382,550			
Holt.....	17,660	32,880	1,620	880		515,175	39,540			
Howard.....	4,071	33,702	545	3,600	21	154,680	44,070			
Howell.....	2,320	3,300	920			246,044	190,866			
Iron.....	1,220	1,560	20	320	2	29,205	46,830			
Jackson.....	20,100	37,681	2,865	5,419	50	92,450	57,150			
Jasper.....	2,168	9,900	640	880	16	297,745	28,500			
Jefferson.....	4,795	4,016	191	415	10	11,989	15,000			
Johnson.....	15,440	54,600	1,640	4,000	57	261,648	191,370			
Knox.....	5,080	18,600	626	1,520	8	93,701	96,240			
Laclede.....	1,020	4,680	310	1,920	155	277,474				61,880
La Fayette.....	11,646	35,844	886	2,320	144	350,406	224,520			
Lawrence.....	1,440	5,580	140	880	56	359,605	264,600			
Lewis.....	2,967	22,311	922	2,968		206,888	97,860			
Lincoln.....	2,063	15,283	284	1,478	283	517,834	225,990			
Linn.....	13,280	36,120	500	1,600		490,071				
Livingston.....	5,310	31,230	1,600	1,200		166,089	508,980			
McDonald.....	480	1,980		400	11	32,815	25,530			
Macon.....	6,120	26,220	940	1,920	30	1,622,271	90,810			
Madison.....	1,580	3,600	40	1,040	3	252,481	79,110			
Marion.....	1,983	9,688	558	1,652	27	18,978	8,220			
Mercer.....	5,543	15,480	260	800		146,293	930			
Miller.....	960	7,765		960	37	193,350	52,110			
Mississippi.....	1,211	2,817	12			15,776	13,410			8,963
Moniteau.....	2,331	17,461	660	2,169	104	697,862	321,030			
Mourroe.....	5,994	25,745	1,290	4,900	46	442,278	113,340			
Montgomery.....	2,032	19,367	596	1,102	35	440,503	167,610			
Morgan.....	1,340	10,560	120	560	21	146,974	120,180			
New Madrid.....	404	640	43				5,040			
Newton.....	1,365	3,843	200	1,200	34	63,476	66,390			
Nodaway.....	31,760	81,309	1,480	4,880	20	1,546,590	206,850			
Oregon.....	220	240			4	26,980	45,000			
Osage.....	869	8,094	74	1,122	19	117,430	127,770			
Pemiscot.....	187	333	10			44,245	5,670			
Perry.....	1,740	7,285	40	1,874		234,360	97,170		72,526	
Pettis.....	14,200	32,963	1,087	6,190	62	291,068	839,160			
Phelps.....	1,780	5,280	560	5,040	135	450,330	14,468			
Pike.....	4,334	17,372	2,327	4,556	201	392,420	102,150			
Platte.....	7,730	41,360	2,496	1,680	1	162,563	60,180			

TABLE OF SHIPMENTS FOR 1891—Continued.

COUNTY.	Head of Cattle.	Head of Hogs.	Horses and Mules.	Head of Sheep.	Mixed Live Stock (Cars).	Poultry (Pounds).	Eggs (Dozen).	Fish.	Meat.	Game (Lbs).
Polk.....	3,100	19,560	1,120	4,960	72	475,640	152,070	.....	.....	.....
Pulaski.....	980	7,320	80	2,320	165	131,306	202,410	20,975	.....	.....
Putnam.....	6,060	12,000	760	480	3	130,823	200,730	.....	.....	.....
Ralls.....	1,200	7,980	40	1,120	19	15,860	5,520	.....	.....	.....
Randolph.....	5,450	18,846	1,370	6,800	37	148,442	90,390	5,428	.....	.....
Ray.....	11,880	33,253	200	640	36	201,148	66,360	.....	.....	.....
Ripley.....	440	3,000	.....	160	2	158,240	33,210	.....	.....	.....
St. Charles.....	2,224	15,194	403	1,355	165	459,082	454,560	.....	.....	.....
St. Clair.....	4,240	16,260	100	400	245	264,830	145,110	.....	.....	.....
St. Francois.....	1,740	2,040	120	1,120	30	44,841	38,400	.....	.....	.....
Ste. Genevieve.....	797	4,584	47	1,166	.....	316,963	168,810	.....	.....	.....
St. Louis.....	4,768	4,722	178	583	7	17,262	15,900	.....	.....	.....
Saline.....	29,534	59,426	2,802	4,889	61	305,260	63,180	.....	.....	.....
Schuyler.....	6,000	27,120	1,200	3,520	2	261,413	183,870	.....	.....	.....
Scotland.....	3,980	17,760	1,340	880	.....	489,660	182,590	.....	.....	.....
Scott.....	777	2,699	12	13	4	32,471	24,390	.....	.....	.....
Shannon.....	60	.....	.....	.....	8	709	480	1,621	.....	.....
Shelby.....	6,040	27,660	1,160	5,360	1	164,221	4,380	.....	.....	.....
Stoddard.....	602	8,070	.....	.....	.....	149,390	109,530	.....	.....	.....
Sullivan.....	16,060	20,220	1,030	1,680	6	353,233	153,210	.....	.....	.....
Texas.....	160	600	.....	.....	2	31,920	10,290	.....	.....	.....
Vernon.....	9,900	17,940	860	320	63	747,760	256,820	.....	.....	.....
Warren.....	589	2,657	22	665	34	218,502	293,850	.....	.....	.....
Washington.....	920	2,640	210	640	1	65,469	45,180	.....	.....	.....
Wayne.....	1,200	1,592	20	.....	.....	52,855	30,510	9,865	.....	.....
Webster.....	2,120	5,520	280	2,560	17	709,885	163,380	75,838	.....	.....
Worth.....	1,340	6,960	.....	.....	38	431,220	168,060	44,495	68,920	.....
Wright.....	4,700	18,900	.....	80	1	10,425	36,330	.....	.....	.....
Total.....	629,438	2,006,444	65,927	190,631	5,415	28,049,177	14,090,426	321,007	402,643	88,625

BEEF BREEDS OF CATTLE.

[By John McDiarmid, Editor Live Stock Indicator,
Kansas City.]

The wide scope of ideas in this subject necessarily involves depth of research, breadth of conception, and, to some extent at least, should be handled by one who realizes the responsibility of writing on a subject involving such vast interests.

Were my own feelings consulted—were I allowed to even suggest some one capable of doing something like justice to such a subject—the quill of some gifted son or some older resident of the great State of Missouri than myself would certainly have been chosen.

However, the manner in which this labor of love has been allotted to me, leaves no loophole of escape however inadequate my ability to perform the task.

A reason for one's belief is always a fundamental principle of sincerity, and accepting that proposition as binding (at least on myself), let me just in a word or two say that I reached the age of twenty-one at least in "Scotland's hills and dales;" that on my attaining my majority, fresh fields and other reasons somehow or other wafted me across the Atlantic ocean to Canada. While there I had the experience of judging of the best land in Cumberland county, Nova Scotia, and very superior land in New Brunswick, along the Bay of Fundy to St. John's, and later on in the great province of Ontario, within easy reach of Toronto.

By and by, like many others, as I began to know more, or at least wished to, I read somewhere:

"To the West, to the West, the land of the free,
Where the mighty Missouri rolls down to the sea."

"Man proposeth, but God disposeth," is an old idea well put, but somehow or other I have been for some years in the State of Missouri by reason of the faith that is in me, which faith the scope of my text gives me ample room to justify.

However great may be my love for the country of my adoption, or however much I may be tinged with "State pride" or "States rights," I feel compelled by a due sense of responsibility to "go easy," even in view of Missouri at the World's Fair. "Going easy" is generally safe ground to take unless there be some emergency, and as there seems to me to be no danger of the grand old State of Missouri suffering very much when men grow wiser, I will simply venture a few thoughts—a round, unvarnished tale, as I believe it, concerning the subject allotted me.

Being to some extent acquainted with the neighboring States to old Missouri, kindly feelings and high appreciation of all of them compels me to write with considerable reserve.

This, of course, brings me back to my text; and right here I must confess there is much in the history of the beef breeds of cattle in the State of Missouri that I would rather burn than publish, yet there is enough for the man who will read between the lines,

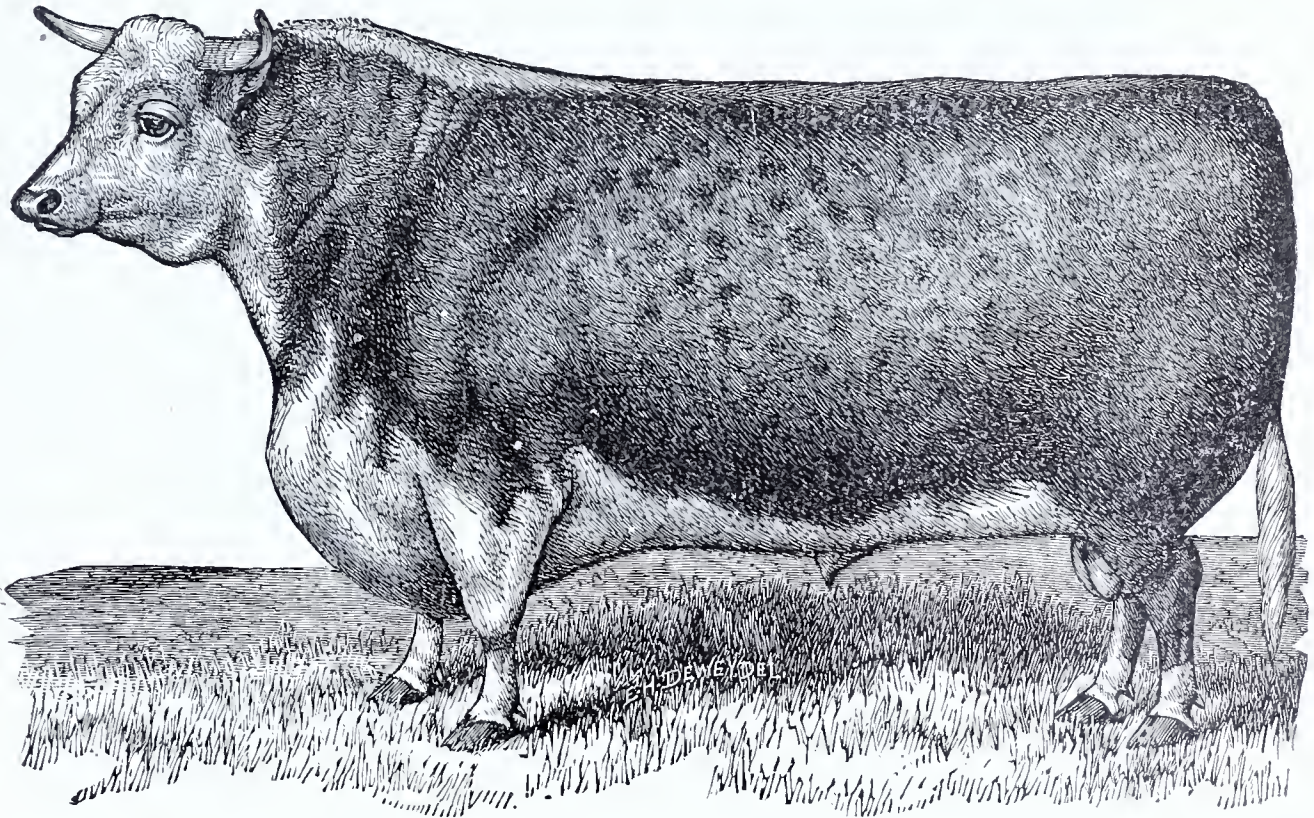
to point the way to a State where no honest, willing man was ever known to go hungry.

When one admits unwritten failures without being called down, there must, of course, be some reason. So far as the State of Missouri is concerned, the writer admits of none; but as may be easily understood in the case of a State of great natural resources—a nation in itself—making a living has been very easy, consequently special efforts and enterprise have been the exception, not the rule.

If we then must refer to the past history of Missouri, it must be with mingled feelings, for in the first place it must be admitted that all of the importers of live stock were not actuated with the highest spirit of

warrants mention, while the small beginning of James A. Funkhouser, of Plattsburg (two heifers and a hired bull), less than ten years ago, and the present condition of that noted herd, are such as give the most timid some idea of the high perfection that can be attained in this State when good judgment and enterprise go hand in hand.

As to the future prospects of beef cattle, it does seem to me that few men comprehend our possibilities. With St. Louis on the east, Kansas City on the west, and St. Joseph on the borders of the northwest, a climate that is unexcelled, grasses of all kinds in luxurious abundance, need it be wondered at that Short Horns, Herefords, Aberdeens, Anguses,



patriotism—naturally the speculative spirit dominated some. Such an admission as this, however, by no means interferes with the spirit of our text, nor does it at all reflect upon the resources of the State of Missouri, though of course some of its past history may as well be buried in oblivion.

Past history and present conditions, to my mind, cannot well be alienated. The small beginnings of Mr. Leonard, of Bell Air, and Mr. Cowan, of New Point, in Short Horns, are object lessons that cannot well be left out of sight. The important importations of Gudgeon & Simpson, of Independence, and the present high condition of their herd, are of such a far-reaching nature as cannot be ignored. The time, judgment and money spent by Col. H. M. Vaile in selecting anew the foundation of a more select breed of Short Horns, is a matter of importance such as

Galloways and all other breeds within the scope of this article are now fast assuming such proportions that their future is now not only assured in numbers beyond the dream of the most sanguine, but also of such a high quality as the highest judgment of man could possibly imagine or desire?

In strict line with such ideas as I have stated so very briefly, may be put in evidence the packhouse plants located here within the last twelve months, and about to be located in Kansas City; the wonderful resources and facilities for feeding and maturing cattle early, and making prime beef from grain, grasses, etc., grown within itself, as a matter of opinion in my nearly fifty years' experience, closely interwoven with the higher classes and qualities of beef cattle, the State of Missouri is difficult to equal, impossible to surpass.

MISSOURI AS A HORSE-BREEDING STATE.

[By L. E. Clement, Pierce City.]

Having been requested to furnish a paper on the above subject, I do so feeling that few, if any, can do the subject justice, and I know that I cannot. But, having attempted it, I shall do the best I can. Few people, in or out of the State, realize what the horse interests of Missouri are. When an Edwin Forrest comes out and makes a record of 2:18, attention is called to the State as one having phenomenal speed elements. Then a little pony like Rich-ball makes a reputation and a record of 2:12½, *when that is fast*, and all eyes are turned to Missouri.

knew from whence they came; and from these have often come race horses of unusual merit. Twelve years ago Granby Maid, a little chestnut mare, was trotted through Missouri, and at Joplin got a record of 2:39¼. She was bred from stock that was sold as contraband, and although a skipper and skirrer, or what was then called a *handy trotter*, she was much faster than her record. From the same stock came Queen B., a pacing mare that was owned in the north part of Lawrence county. She took a record of 2:31, and was bred by her owner, Bethel Hunt, to Grantham Chief; the produce was Door Knob, 2:24¼.

In the north and east part of the State, joining the States of Iowa and Illinois, considerable attention



Again a star arises and a Missouri farm horse is advertised as "New Hope," and, laboring under physical infirmities, he takes a record of 2:16. At such times as these, in times past, attention has been called to Missouri as furnishing something out of the usual order. I have never seen any surprise expressed that Missouri was the first State in the Union in the production of salable mules; they would be more surprised if it was reported any other way.

A study of the history of the horse in Missouri shows to the thinking mind that she is not dependent on scattering cracker-jacks for reputation. At the close of 1890 there were owned in round numbers horses and mules to the number of 1,096,762 (*one million ninety-six thousand seven hundred and sixty-two*), and a gain over the previous year of nearly sixty thousand animals.

At the close of the war many animals were sold in Southwest Missouri as contraband of war. No one

has been given, in years past, to the various breeds of draft stock, but I think it is now conceded that, as a money-maker, the mule is the best draft animal for a Missouri breeder to breed. There are scattered all over the State of Missouri, the very best specimens of the saddle horse of the South, and it is generally conceded that no county or territory of the same area can furnish so many and so good a class of saddle horses as Callaway county, Missouri.

It seems useless to single out animals that have given prominence to Missouri as a saddle-horse State; but when they have won national reputation, like Montrose, that has won over the best at Chicago, St. Louis and Lexington; Artist, that won reputation here, and was returned to Kentucky; the Gray and Black Squirrels, that have all left their imprint on the saddle stock of the State; and the Denmarks, that are designated by the owners' names only, like Price's, Gentry's and Collins', are scattered all over

the State. One of the grandest horses I have ever seen, and that is in great demand in the stud at a high fee, is Artist-Montrose, owned and kept at Appleton City. In thoroughbreds, the State has been well represented.

Little Arthur, the one colt that saved the name of Imp. Glencoe from oblivion, and gave him a reputation and a chance to do something, was a Missouri horse.

Ulverston, sire of the dams of Ryland T., 2:10 $\frac{1}{4}$, and the grandam of Delmarch, was owned by Capt. Ryland Todhunter, of La Fayette county, Missouri, and was probably the best son of Lexington.

Several breeders, among them Mr. J. M. Leet and Mr. Prather, of Nodaway county, have been prominent as breeders of thoroughbred horses.

While, as before stated, the breeding of saddle horses has been one of no inconsiderable importance, we must look to the American trotter to add to the values, and increase the profits in the future, and this being to-day the controlling interest in this great business, amounting to over one hundred million of dollars in Missouri alone, counting all at one hundred dollars per head.

The entry of the trotting horse into Missouri was made about the same time at two points. Gov. Norman J. Colman, then in the full flush of his manhood, with his young family about him, began at St. Louis; and Capt. Ryland Todhunter, just discharged from his place as Adjutant-General of a Texas brigade in the Confederate Army, not being able to live in his old home, among a class of stay-at-homes that he despised, after punishing one of the boldest for a wilful destruction of his live stock, came to La Fayette county and settled down in bachelor quarters, and with the descendants of Marion, Bob Didlake, Idol 177, and Pilot, Jr., the Captain undertook to breed trotters.

Gov. Colman seems early in his career to have imbibed a strong prejudice for high-bred trotting stock, and had the blood of Mambrino Chief and Pilot, Jr., strongly mixed with the thoroughbred, and later he obtained Abdallah, Jr., by Alexander's Abdallah, son of Hambletonian, and out of Kitty Fisher, by Chorester, son of Imp. Contract. It is a well-known fact that in very few instances has the blood of Mambrino Chief and Pilot, Jr., fused kindly, because they were too much alike—too long in the back and too weak in the coupling.

Later the Governor had in Seth Warner a combination of Black Hawk blood through his sire Ethan Allen 43, the best son of Black Hawk (5), and out of the game race mare Sontag, 2:31, by Harris Hambletonia. For long years the Governor worked away with little to show for it. Sometimes a colt was sold at a fair price and taken into the interior of the State or over into the adjoining State of Illinois; but he was not getting rich out of his breeding; nor had his 2:30 list of trotters grown to very great size. All these years he had been breeding in brood mare lines.

Some time in the seventies, Thomas T. Turner purchased from Dan Sweigert, their manager at Wood-

burn, Merchant 599, by Belmont, out of Lady Mambrino, by Mambrino Chief. Merchant was at that time considered one of the best-bred sons of Belmont that had ever left Woodburn. In 1876, Gov. Colman bred to Merchant, Trojana, a Morgan mare, full sister to Ella Wright, 2:24 $\frac{3}{4}$, and herself threatened with some speed. The produce was a black colt that as a 3-year-old made a great showing, winning a 3-year-old race in hollow style over Cash Boy and others. This colt was Monitor, the founder of the great Missouri family of that name, he now has two in the 2:30 list and has one son a sire of a 2:30 performer, and his sons and daughters are attracting attention among progressive breeders in all parts of the country. For 1893, Monitor has been farmed to parties in Indiana, where he will meet the quick-gaited mares by the Legal Tenders, Rainbows, Blue Bulls, Hiatogas and other pacing-bred families, and will probably add very much to his reputation as a sire.

At the bachelor quarters of Capt. Todhunter, things did not at all times run smooth, he had a good half-mile track laid out, where his colts were trained and developed, but sales were slow, and he traded a carload of his mares to Sprague and Ackers that were then running at Lawrence, Kansas, and bred seven mares to Ethan Allen; the only result of this breeding was the gray colt, Allegro, out of Annette, by Idol 177, she out of the grandam of Merchant. This colt was entered in a stake at Kansas City, in 1879, where, through fear of Sister Wilkes, entered by E. A. Smith, from Lawrence, Kansas, all paid forfeit except Allegro and Sister Wilkes; the colt won with ease, but through bad management became blind and was sold and passed into the hands of J. C. Graves, Pinkard, Ky., where he has sired two 2:30 performers. A colt by Marion, son of Mambrino Chief, out of a mare by Bob Didlake, was used in the stud and made some reputation as Todhunter's Mambrino, siring a very uniform class of colts that matched up well, and the captain won honors with them at St. Louis, Kansas City and Chicago. While running these bachelor quarters, he was sometimes visited by Gov. Colman, Capt. Dixon and other horsey friends, and a general good time indulged in; but there were few 2:30 trotters bred on the farm, and with the advent of a new management in the house, which was undertaken by Miss Neill, a number of years ago, all these things were changed, and a home grew out of the chaos, and while the captain is proud of his trotters, he is yet more proud of his family.

Early in the seventies, the ranks of Missouri's trotting horsemen were augmented by J. C. Quarles and James Longshore, and they have been consistent performers from the start. J. C. Quarles managed, for a number of years, the breeding and trotting of the King Hill Stock Farm, and has earned the friendship of many of the old and new race-goers. In 1876, James Longshore identified himself with a big black four-year-old colt that he found pacing down in Dade county, and, as some of his friends said he was a clinker, it was good enough for him, and he was given the name Clinker, and when eight years of

age, he took a record of 2:20, at that time the fastest time ever made by a pacing stallion; and on his return, by an accident, he lost his eyes. I have been told by Mr. Longshore himself.

The first colt to attract attention was out of Belton Maid, a mare that he met and defeated in his first race. This colt was called Billy Clinker, and trotted several good races, and took a record of 2:20 $\frac{1}{2}$, and his name was changed to Linwood, and he was sold and went to Europe. There are now six to the credit of the old horse, three trotters and three pacers, the fastest of which is Sallie Clinker, 2:16 $\frac{1}{2}$. These records were nearly all made by horses that Longshore developed himself, and others of the family that he has developed have records better than 2:40; in fact the history of Clinker without Longshore would be a short one, and the history of Longshore without Clinker would be like the play of Hamlet without the ghost.

In 1878, G. B. Blanchard, who had, as he thought, too many cattle, decided to try and breed some roadsters, and from his neighbor, E. D. Montague, purchased a colt afterward called Dom Pedro. He was by Mambrino Champion, son of Mambrino Chief, out of Lucelle, by Hartford Hambletonian, brother to Volunteer, grandam Glencoe Belle, by Ole Bull, son of Pacing Pilot. This horse was bred on all kinds of mares, thoroughbreds, saddlers and trotters, the best mares of the country.

Down at Sedalia a brick-maker and contractor had seen some good colts from a Kentucky horse that was to be sold at auction, and Sam Mentzer became the owner of Joe Elmo, not because he was by a fast son of Abdallah 15, nor because he knew anything of his breeding, but because he liked the horse and his colts and wanted to breed roadsters.

M. Beemer purchased the non-standard son of Almont 33, Al. West, and the Big Bay was always ready to start, and could trot about 2:35 at any time, and Mr. Beemer enjoyed his races then as much as he does now the races of President Wilkes and Blazebury, when 2:20 is beaten. John Cline had started with Dresden and a non-standard Tuckahoe horse.

There were probably other breeders in the State, but here was about the condition of things in the early part of the eighties.

Capt. Todhunter had found old Ashland Chief south of Sedalia. The Captain was riding this horse during the war, when the artillery cut off a heavy limb that fell across the neck of this great son of Mambrino Chief.

Merchant had been purchased by citizens of Mount Vernon, in Lawrence county, the first standard horse ever owned in the county.

D. L. Bourn, of La Belle, had tried breeding trotters and had sold to the famous Glenview farm in Kentucky, Tot, by Dictator in foal to Egmont.

There was a feeling through the State that the trotting horse interest was growing, but no one knew what the others were doing. Capt. Todhunter had become disgusted, and sold off his stallions and was

breeding standard and standard-producing mares to jacks, and raising mules.

In the fall of 1887, The Missouri Trotting and Pacing Horse Breeders' Association was organized, and notes were compared, and the business took a boom. Dr. Robinson, who had decided to breed fine horses, and had gone to Serriker Brothers and paid \$1,800 for a Cleveland bay, went to Kentucky, and came home and closed out what he had, and the firm of Robinson & Callison began by bringing in such colts as Harry Hodgkin, by Belmont; Walnut Boy, by Ferguson; Meadow Lawn, by Meadow Brook; Medal, by Princess, dam by George Wilkes and other good ones, and mares by Almont and other popular sires, and have had several successful sales.

The McCormick Live Stock Co., which had all kinds of breeding except that of the Standard trotter, had Aytoun, a non-standard son of King Rene, at the head of their stud. They were represented in the first meetings by Miss Cleveland, and held the State record for two and three-year-olds with her, and gave her a record of 2:25 $\frac{3}{4}$, and her sire a standard record, making him standard by performance and the performance of his get.

Contact with other breeders has had the effect of bringing The McCormick Live Stock Co. to the front as well equipped for business as any farm in the west.

On the north line of the State, Dr. Geisinger has one of the great pacing brigade in Seafoam, sire of five with records from 2:17 to 2:24 $\frac{3}{4}$, with his son Kosciusko, and Orid, 2:24 $\frac{1}{2}$, trotting.

D. L. Bourn, who, like Capt. Todhunter, had been running a bachelor's hall, came to his senses, and at the Glenview disposal sale paid \$2,000 for Tot, in foal to Pancost, that he sold for \$1,200 in foal to Egmont. Sold Konantz because he did not like to drive a horse he had to whip, and sold Nihilist because he was mixed-gaited, and married a wife for reasons best known to himself. Mr. Bourn now has at the head of his stud St. Valentine, 2:16 $\frac{1}{2}$, the largest stallion in the 2:20 list. Mr. Bourn developed Konantz, that took a 2:28 record, bred Exit, 2:28 $\frac{1}{2}$, and On Time, 2:26 $\frac{1}{2}$, and bred Tot to Egmont, when she produced Northwest, that has a 2:15 pacing record, and is now being developed as a trotter, and bought her back while carrying Patenter, and developed him to a record of 2:27 $\frac{1}{2}$.

Frank J. Grigsby, of Nodaway county, brought Robert Rysdyk from Kentucky, and developed him to a record of 2:24 $\frac{1}{2}$ and sold him to C. F. Clark, of Mexico.

At the same time that he purchased Robert Rysdyk, he also bought Olivet, by Onward, and raised three colts from her by Robert Rysdyk, Stepper, owned by C. F. Clark, Capsicum at the head of E. H. Bainum's stud at Maitland, Mo., and Rose Rysdyk kept as a brood mare. Mr. Grigsby sold Olivet to S. A. Brown, of the Kalamazoo Stock Farm, for \$1,500, and has bred two colts from Rose, the first a filly now two years old, by Pilot Medium, and undoubtedly the best bred colt he has ever sired, a filly by Callaway, sold as a yearling at a combina-

tion sale for \$400, and she is now in foal to Victor Eno, the only stallion I know that has fourteen producing dams, nine of them in the great brood mare list.

After selling Robert Rysdyk, Mr. Grigsby went to California and purchased Callaway, by Sterling, best son of Egmont, dam Red Rose, sister to Bay Rose, 2:20 $\frac{1}{2}$, by Sultan, out of Madam Baldwin, by the Moor, and Oberis, by Prompter, son of Blue Bull, dam by Sultan, and is breeding a high class of trotting colts of wonderful finish.

About the time of the organization of the Breeders' Association, Mr. A. J. Coldren came to Maryville, Mo., and brought with him Alleghany Boy, by Wood's Hambletonian, son of Abdallah 15. This fellow took a record of 2:27 $\frac{1}{4}$ and has four in the list, among them the great four-year-old Rosewater, 2:16 $\frac{1}{2}$, owned at Maitland, Mo. Harry McNair is phenomenally fast, and although he entered the list new in 1892, he has 18 winning heats to his credit in 2:30 or better. The influence of Mr. Coldren and his horses in and around Maryville has been a healthy one, and the get of Alleghany Boy will do much to increase the value of the horse stock of Nodaway county.

Judge Kennedy was one of the first breeders of trotters in Nodaway county, and from a couple of daughters of Merchant, purchased from Thomas T. Turner, bred to Jester D., came the dam of Guy, 2:30, and Eliza K., 2:22 $\frac{1}{2}$ pacing, both bred by Judge Kennedy and sired by Robert Rysdyk.

South of Maryville is the farm of J. M. Leet, devoted to thoroughbreds and trotters. At the head of the trotting contingent is Herschel, one of the very best sons of Belmont. The second horse on the place is Wilkiemont, 2:28, by Bourbon Wilkes, dam Lark, dam of five in the 2:30 list, four of them being by Bourbon Wilkes.

There have been bred at the farm Nora Seeley, 2:20 $\frac{1}{4}$; Prince Herschel, 2:21; Hershon, 2:29 $\frac{1}{4}$, and Alta May, 2:27, all by Herschel, and several that will enter the 2:30 list at an early day.

John Cline disposed of his sires, and Alta Plane Stock Farm was started by John Cline & Sons, with Cashman, son of Almont, and Midas, son of Onward, in the stud. There have been bred at the farm Miss Edith, 2:19, and Misdeal, 2:25 $\frac{1}{4}$, out of Mishap, by Cashman, both being by Midas, while their third and youngest stallion, El Captain, by Alcantara, took a record of 2:20 $\frac{1}{2}$, and sired Dornuee (3 years) 2:24 $\frac{1}{4}$, out of Dolphea, by Dresden. Alta Plane ought to be satisfied, as they have sent out young breeding stock at good prices, and the grandsons and granddaughters from Alta Plane will soon be heard from. John Cline has been a vice-president in the Breeders' Association since its inception, and has a host of friends among the members.

Prominent among the entries at all the meetings of the Association have been those of W. W. Finley & Son, of Huntington. They have at the head, Valcour, a well-bred son of King Rene, and one that is likely to prove a great sire in the near future. While to my knowledge they have bred no 2:30

performers, they gave Valcour a record of 2:28, and to Currer Bell a record of 2:29 $\frac{3}{4}$, and the breeder who has sires and dams bred like these that have demonstrated speed, will breed trotters sooner or later.

Among the early members of the Association was H. C. Tindall, the present secretary. From Fayette Chief, son of the handsome Mambrino King, he bred King Herod, that has proven himself a great race horse, and has a record of 2:16 $\frac{1}{2}$, and eighteen winning heats in 2:30 or better. Mr. Tindall has other good ones, and will not stop with breeding one race horse.

The Foote Brothers came in from Nebraska, stopping at Memphis, and have since permanently located at Mexico, Mo. They bred the second two-year-old Missouri colt to enter the 2:30 list by Dr. Strong, and out of a mare by Gov. Wilkes, son of George Wilkes, and gave Prince Medium a record of 2:26, and the brown gelding, Maxie McGregor, by Ben McGregor, a record of 2:28 $\frac{3}{4}$, the fifth heat in a race. They have taken a prominent place among the horsemen of the State, and have in the stud two horses with records better than 2:30—Prince Medium and Gov. Strong. At Maitland, Mo., E. H. Bainum has in the stud Capsicum, by Robert Rysdyk, dam Olivet, by Onward; 2d dam, Santa Claus, by Maggie; 3d dam, Jessie Raily, by Gen. George H. Thomas; 4th dam, Santa Maria, by Pilot, Jr., and Waukegan, by Ravenwood, son of Almont Pilot, out of Wanita, dam of Wilkiemont (sire of Bertie R., 2:18 $\frac{1}{4}$), by George Wilkes. Mr. Bainum is breeding some good ones. A two-year-old by Waukegan, dam by Jester D., will be a good one to keep an eye on in 1893, for she is a sure trotter.

At the same place, Charles Donovan has a good stud of horses, with Clarkstreet, son of Red Wilkes, at the head; with Homer Wilkes, 2:28 at St. Joseph in 1892, in second place.

Abdallah, Jr., that Gov. Colman had used in St. Louis, was traded to parties in Northeast Missouri, and striking a mare by the pacing-bred horse Lash, produced Pearl, 2:30, and her full brother Forsee, 2:27, that, the indications now are, will found a family that is likely to attract attention.

King Hill Stock Farm was organized to breed and develop the trotter, and Nora Seeley was purchased from her breeder, J. M. Leet, and started at the first breeders' meeting in her two-year-old form. She was from the first a consistent performer, and entered the list as a three-year-old, and has reduced her record to 2:20 $\frac{1}{2}$.

Wilkie Russell, the premier stallion, took a pacing record of 2:15, and sired Princess, the first Missouri-bred two-year-old to enter the 2:30 list. Later, Nigger Baby, by Coriander, was given a record of 2:27 $\frac{1}{4}$. The farm has been successful from the start.

At Helena, Mo., F. E. Driver pinned his faith to a son of King Rene, and placed Arabasque, out of Aleo, by Princess, dam Althea, by Almont, at the

head of his farm, and has shown the faith that was in him by giving Arabasque a record of 2:29 $\frac{3}{4}$, and putting three of his colts in the 2:30 list, and for the season of 1893 has engaged with Maj. McDowell, of Kentucky, to drive King Rene and his get. Sooner or later it will not be considered strange to see Kentucky and California coming to Missouri, not only for drivers, but for breeding stock.

If I remember rightly, Mr. Driver bought out Mary Marshall, 2:12 $\frac{1}{2}$, after raising a colt from her. When it comes to the phenomenal, you can nearly always count Missouri in.

The St. Joseph Stock Farm have placed at the head of their breeding venture a son of "The Monarch of the Home Stretch," Roslyn, and have reduced his record from time to time until his six-year-old record stands at 2:18 $\frac{3}{4}$. They have laid a great foundation, and you can look for a superstructure in keeping with the foundation on which it is built.

At the first meetings of the Breeders' Association, C. B. Hurxthal entered in slow classes Bonny Clay, a mixed running and trotting-bred horse, that, like his breeding, was not up to the balance of his field. It was not in order that C. B. Hurxthal should, like McCormick and others, correct his errors by seeing what others were doing. Death took him away, and the boys, just in their early manhood, enter the field as C. B. Hurxthal's Sons, with Juliet, by Bonny Clay, and in 1892 gave her a pacing record of 2:20. So the work begun by the father will be proudly carried out by the sons.

At a little out-of-the-way place called Bunceton, a farmer known all through the circuits as Bob Harriman, struck a gait that would almost make the head of C. W. Williams swim. He had not, like Williams, been using his leisure time driving pelters, but went at his work without preparation, and in the second year gave Miss Fullerton a trotting record of 2:26 $\frac{1}{2}$, and the two-year-old Pansy Blossom, the *world's two-year-old fourth heat in* 2:21 $\frac{3}{4}$, and, as a financial showing, won \$3,000 with the two colts; sold \$3,000 worth of stock from the farm, and collected \$3,000 in stud fees, the third year from the first inception. Who enters, and where is the man that claims honors over Bob Harriman, of Luray Stock Farm, Bunceton, Mo. At Boonville, Mo., Frost & Sons started a breeding farm, and later L. E. Frost, of St. Louis, took hold; the farm was moved to Roodhouse, Illinois; and Hermitage, 2:19, by Pretender, out of Queen B., the dam of Colbert, 2:12 $\frac{1}{4}$; Hermitage, 2:19; Robert Rysdyk, 2:13 $\frac{1}{4}$, and Ruby Macklin, 2:22 $\frac{1}{4}$, and a Sidney colt that has a two-year-old record of 2:42 and a trial better than 2:30, were placed thereon. This will be a successful breeding venture.

Dr. George C. Pitzer, of St. Louis, started a breeding farm, with a son of the dead Aleyone at the head, and a choice collection of pacing matrons. To-day Captain Walbridge, by Arcades, son of Aleyone, out of Ruth, pacing sister to Champion Medium, by Happy Medium, dam by Almont holds the State two-year-old record, and St. Louis Maid, out of the pacer

Jennie Crews, holds a record of 2:24 $\frac{1}{2}$; Luey McGregor, by Ben McGregor, was driven in races better than 2:30, and as all his stock is young, you can all look for Pine Hill Stock Farm to score a great success, even among Missouri stock farms.

As we strike the center of the State, we come back to Sam Mentzer, at Green Ridge, who bought Joe Elmo, who to-day is credited with six 2:30 trotters and pacers, and has, with Woodford Knox, done the pioneer work of Pettis and adjoining counties. Woodford Knox sired the little iron horse, Honesty, 2:17 $\frac{1}{4}$, and twenty-seven winning heats in 2:30 or better, and that has been seen in races on nearly all the half-mile rings of the West. It is claimed some people would not know they had been to the races if they did not see the little white-tipped pacer at the meeting.

One of the first to identify himself with the Breeders' Association was B. F. Holway, then located at Fayetteville, Ark. With the advent of the new dispensation, under the impetus of united effort, B. F. Holway moved to Sedalia, where he has in the stud Elliston, one of the handsomest sons of Electioneer; Woodsprite, by Nutwood, and Prodigal, by Onward. Star Hawk, 2:25, was bred by him, and the dam, Betula, by Romulus, is still owned at Nutland. Zebu, by Regent, was also bred by Holway. This fellow took a record, in 1892, of 2:29, and is out of Zingara, by Almont Rattler, one of the matrons at Nutland.

Elk Hill Stock Farm is situated in Saline county and comprises 1,800 acres of upland and valley, the finest of blue grass pastures and the clearest of crystal springs.

Here the best son of Smugglar, the handsome Revenue, 2:22 $\frac{1}{2}$, has for a number of years found a home. Here, Elsmere, the son of Electioneer and Winona, by Almont, holds court, and Lord Wilton is the third horse on the bills, and in January I saw producing dams in rich blue grass pasture that had hardly tasted hay through our unusual winter.

In Callaway county the reputation of Aaron Pennington, the thoroughbred sire of Sally Howard, or Gipsy Queen, was earned, and he will some day be the second thoroughbred horse to enter the great list of sires of 2:30 trotters. I have written so far about the northern and central part of this grand old State of Missouri, and have only spoken of now and then a breeder among them. In the rich river country of Saline and La Fayette the soil is deep and water meets no resistance, as great gullies are washed out in which might easily be engulfed large houses. In this section M. Beemer, who began with Al West, has owned Ashland Wilkes and his get, stud of the family of Harold and other good ones.

Here Capt. Todhunter is breeding trotters by Merchant, son of Belmont, and Electric, son of Onward. Here, Capt. Barnett bred Red Ink, 2:30, at three years, and J. A. J. Shultz bred Bertie R., 2:18 $\frac{3}{4}$. At Sedalia was developed the three-year-old world's champion pacer, John R. Gentry, 2:13, and other good ones; but there's a greater country south of there, among the mineral hills of Southwest Mis-

souri, for the breeding and development of the American harness horse.

Beginning at Nevada, which three years ago had made no advance, we find W. G. Lemen with Cresco, son of Strathmore, dam by Almont, sire of Crescent (3 years), 2:23½; G. W. Redmon, by Burbon Wilkes, brother to Miss Redmon, 2:29½, being out of Beekie Bird, 2d by Westwood, in the stable of J. P. Stephenson; three standard horses in the barn of Irwin Gordon and J. H. Pinnell, with a number of standard mares.

Nevada, Mo., is a good place to start in on the merits of Southwest Missouri as a country unsurpassed for the production of the best specimens of the best horse on earth.

At Clinton, Mo., they have Redmon C., one of the first Missouri-bred three-year-olds to pace in 2:30, and his sire, Joe Thorndale, that trotted in 2:30 in 1892; A. Standard, son of Red Wilkes, and progressive breeders.

This has been the home for the last few years of Al West, and his daughters are well scattered over the country.

At Lamar, we have Red Boyd, a son of Dominion, son of Red Wilkes, and I hear of some of his produce that are very fast. A son of Bayard is here, and a grandson of Nutwood, the greatest of living sires.

At Carthage Trumpeter spent the first years of his life as a race horse and sire, and has left some promising fillies the future dams of winners. Here is the home of Ben McGregor, sire of Roy McGregor, 2:26½, and Maxie McGregor, Lucy, Dido and other fast ones. At Springfield, they have Trumpeter, 2:20½; Gilbird's Sprague, 2:21½; sons of Mambrino, Patchen and other great sires.

Springfield has developed Zebu, 2:29½; John L., 2:29¼; William H., 2:22¼; and Black Dick, 2:15.

There is no climate in the world better for the health of horse or man than what is known as the western slope of the Ozark Mountains. Here the soil is filled with stone and gravel, and the hoofs of the colt need little care or trimming; the water is of the purest, and the air is clear and bracing.

Horses here are seldom sick, and the human family is not troubled with malaria or low fevers.

There is no part of this world where fruits, suited to the temperate zone, do better than anywhere on the Ozarks.

From Springfield west to the Kansas line are the richest lead and zinc mines in the world, and fortunes are made every year in the mining camps. Here capital finds remunerative investment. No country beats it for an every-year winter wheat crop, and, while the nights are too cool to grow very successful corn crops, corn and oats are never high, and all the tame grasses succeed wherever tried. Clover does as well as on any land I ever saw.

There are first-class schools in all the larger towns and cities, and churches of all denominations in every county. No better society exists anywhere, and it is the paradise of the horse and his owner.

There is, to-day, no part of Missouri that has not sent out its cracker jacks.

I have more or less carefully gone over what the central and northern part of the State is doing; and from the hills of Franklin county went out Eddie D., 2:17¼, and his full brother, Sleepy Rover, 2:25.

From Polk county went out Dolly T., 2:18, and I was offered her sire and dam for \$700.

If Kentucky can breed a good horse, Southwest Missouri can breed him cheaper.

If Mr. Jewett can breed a cheap horse in Kansas, we can breed a better one in Southwest Missouri just as cheap. If you are looking for a location to breed sound, serviceable animals, as cheap as they can be bred, do not locate until you have seen and lived in the country in Missouri between Springfield and Carl Junction, and then you will make no mistakes.

In condensing prominent points in the breeding business of Missouri, I will begin by stating that "The Pate Stock Farm Company" is an incorporated company, having at the head of their stud, Counsellor, 2:21¼, trotting, and Allie Russell, 2:22¾, pacing. The farm is at Baden, near St. Louis, and is one of the best equipped in the whole country. Robert Rysdyk, 2:13¼, holds the stallion record of the State. Of those that will be prominently before the people in 1893, for the trotting stallion race record of the State, will be Combination, 2:18¾; White Foot (four years), 2:22¾; King Herod, 2:16½; Trumpeter, 2:20¼, and Andrew Allison, 2:22½, all developed and acknowledged race horses.

The greatest three-year-old trotting mare out in 1892 was Kentucky Union, 2:13½, and eighteen heats better than 2:30. She was only beaten by Directum, while temporarily incapacitated by sexual disorders.

In the pacing brigade, we have John R. Gentry, 2:13, the world's three-year-old pacing record; Pansy Blossom, 2:21¾, the world's 4th heat for a two-year-old pacer.

In the stallion class, we have Rosewater, 2:16½, at (four years) first season out; Dan Tucker, 2:16¾; Northwest, 2:15, now trotting; Wilkie Russell, 2:15; Black Dick, 2:15, 2d to Vilello in what was thought to be a dead heat, and driven by an amateur in 2:11¼; Walnut Boy, 2:11½; Grant's Abdallah, 2:10½. Those who have watched the trend of events are strong in the faith that the winter of 1893 and 1894 will see Missouri with the world's pacing stallion record. Sam Fuller will have Walnut Boy, McHenry will have Black Dick; Rosewater will be managed by his owners. Grant's Abdallah will, as usual, be in the Stewart string.

Some are basing hopes of the two-minute trotter showing up in 1893 in Ryland T., 2:10½, in the hands of Scott Quinton, as he has shown speed to warrant the belief, and horse and driver are in sympathy. The dam of Ryland T. is a Missouri production, and his full sister will come to the wire in 1893 in the string of H. E. Ashbrook.

Lord Clinton, 2:10 $\frac{1}{2}$, is credited to Deming Allen, son of Honest Allen, dam untraced. I think I can prove beyond a shadow of a doubt, he was by Mike McCool, out of a mare by Harry Bluff, sire of the pacer, Harry G., 2:36, bred at Lamar, Mo., and foaled at Liberal, passed through the hands of Jule Armfield, Tom Stockton, John Phillips, Pleasanton, Kansas, one Stafford and Marshall Patten, of Van Buren, Arkansas, to parties in Little Rock, and I am quite sure it is safe to place him with Missouri-bred horses.

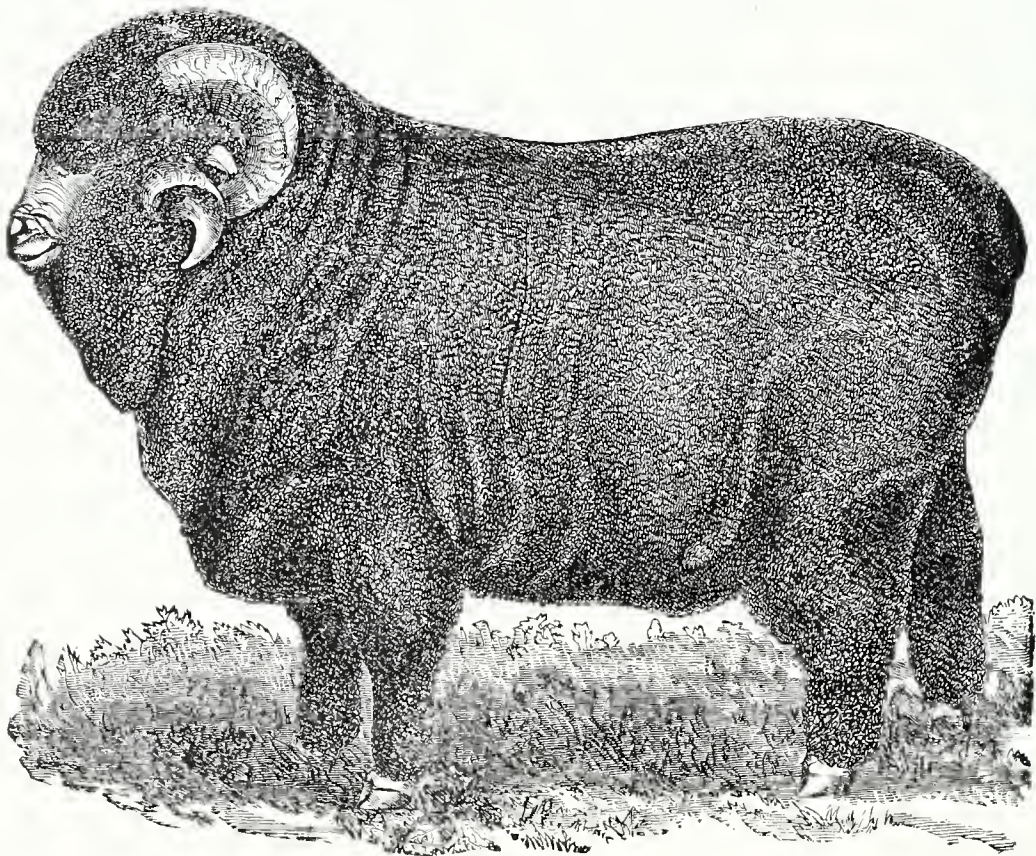
We have numberless good half-mile tracks all through the State; now good meetings are held. D. L. Brown at La Belle has a mile kite track. Sedalia has a kite track, where she has held two successful meetings. Mexico has a kite track, but

up to date has failed to make herself square with the horsemen. St. Louis has a good regulation mile track.

Moberly rejoices in a mile regulation over which good races are annually held, and St. Joseph has a new track on which the world's champion stallion race record was made by Lobasco at 2:10 $\frac{3}{4}$.

Those who have followed these rambling remarks will get an idea of what is being done in the State, and can for themselves see the possibilities, when it is remembered that I have shown that these great strides have been made inside of six years.

The next six years should give us a greater advance, as the world will never go to the World's Fair and not see and know what Missouri (the greatest State in the Union) is and is doing.



SHEEP.

Missouri offers unique advantages to the sheep-raiser, especially in view of the fact that truth compels the remark to be made that the State has not by any means done all that it ought to have done in the way of sheep-raising in the past, and more especially in the immediate past. It is difficult to contemplate a State in which sheep-raising could be carried on so profitably as Missouri, and exhibits at the World's Fair show that some farmers at least are alive to this most important fact. Thus there is on exhibition among the Missouri wonders a fleece weighing 43 $\frac{1}{2}$ pounds, and there are several authentic cases on record of fleeces from Missouri sheep

turning the scale at 45 pounds. To realize what this means, it must be remembered that twelve pounds is a good weight for a fleece, and that 20 pounds is considered both remarkable and unusual, and hence it will be observed that Missouri has made the average look foolish in regard to the yield of wool from single sheep, although the cases mentioned are, of course, unusual as well as phenomenal; extraordinarily heavy weights are anything but rare in the grand old State, which can proudly boast of its greatness in so many varying details.

There are in Missouri some of the largest flocks of sheep in the country, and great attention has been paid to improving the grade of sheep kept. At the

same time the industry has not increased as rapidly as others in the State; indeed there are no more sheep in Missouri to-day than there were ten years ago, although during that period the increase in the number of cattle, horses and hogs was remarkably large. Under ordinary circumstances this would be regarded as a serious drawback to Missouri's fame, but it must be remembered that sheep-raising generally has not held its own as a money-making business during the last decade. Texas, for example, is generally spoken of as the great home of the sheep-raiser, and in 1883 that State had nearly 8,000,000 sheep. Since then the number has decreased rapidly, the falling off having amounted to 500,000 and even a million in a single year. Ohio had over 5,000,000 sheep in 1883, and it also shows a large falling off, while Pennsylvania, which in 1883 had nearly half a million more sheep than Missouri, fell off so rapidly that in 1888 the last named State caught it up and easily passed it.

Reasons connected with politics and the tariff, which, of course, cannot be enlarged upon here, are largely accountable for the falling off. The diminution in value of the sheep in the United States between the years 1883 and 1887 amounted to \$34,000,000, and, as a result, careful inquiry was made as to the causes. These it is believed have been largely removed, and new life has been given, in consequence, to an industry which affords ample opportunity for making money and using up surplus product. Since 1887, there has been little or no falling off in the total number of sheep in the country, and in 1891 it was found there were some 43,000,000 sheep in the United States, of which nearly a million were in our State. The wool product the same year was 285,000,000 pounds, showing that the average weight of a fleece was only six pounds, or one-seventh that of the fleece exhibited this year by Missouri. The falling off in the number of sheep kept in Missouri, which took place during the eighties, has been stopped, and an increase is reported from most counties. The steady tide of immigration which has set in of recent years to Missouri is certain to have the effect of attracting increased attention to this industry, and Missouri sheep and Missouri wool will for many years to come increase in value and importance.

The Merino has probably the greatest number of friends in Missouri. It grows to great size in the State and is certainly the best wool producer yet tried. The Southdown has been found the most profitable mutton sheep and is now being raised in large quantities. The infusion of Merino and Southdown blood into the flocks is having the expected effect and greatly increasing both the flesh and wool-producing qualities. Cotswold and Shropshire are also winning many friends in the State, and it has been found that there is little difficulty in making money out of sheep when the farmer gives them sufficient attention to improve the breed and does not content himself with the cheapest and poorest grades that come his way.

HOGS.

An immense amount of money has been and is still being made in Missouri out of hogs. Broad-backed, short-faced, small-eared and massive pigs have taken the place of the gaunt razor-back animal of a generation or two ago, and at the present time there is probably no State in the Union where a higher grade of hogs is raised than in Missouri. Dr. D. H. Webster, of Cass county, read an excellent paper on the revolution that has taken place within the memory of the older farmers in the hog-raising industry, and from this paper the following is taken:

"My mind has gone back nearly one-half century, to my initiation into Western Missouri and my first experience of farm life. Then, as now, one of the most important animals among the farmer's stock was a hog—not because he required so much care, but so little. He was expected to furnish an important part of the family diet, with, in many cases, no attention to his own. He was not an attractive-looking animal; indeed, quite the reverse—long-legged, long-nosed, large, coarse ears placed equidistant from either extremity. Body thin and flat, *a la clapboard*, and covered with coarse hair which climaxed in a row of bristles covering the 'ridge-pole' from head to tail. These, when he was enraged or excited, stuck out like porcupine quills, and gave him a formidable appearance.

"In those 'good old times' we did not think of converting him into pork until he was two or three years old, and indeed the fattening process was a nominal affair in many cases. Some farmers by much trouble captured them alive a few weeks before they wished to butcher, put them in pens and fed them corn to give firmness to the pork, and prevent too much 'shrinking in the pot.' In many cases the hogs killed for use were hunted in the fall with dogs and guns, and shot or captured like other game. This was done after they were fattened on 'mast,' which consisted of acorns and various kinds of nuts and wild fruits, such as plums, pawpaws, etc.—not bad material, we must acknowledge, for conversion into sweet and wholesome meat.

"As a rule, no care was given hogs, except during severe cold weather, when the ground was covered with snow and it was impossible for them to find their customary food. In such cases the owner, taking a bucket of corn, would start out and follow one of the numerous 'hog-paths' with which the timber was gridironed, and would travel until he found the bed. This was usually quite an extensive affair, consisting of dead leaves and grass.

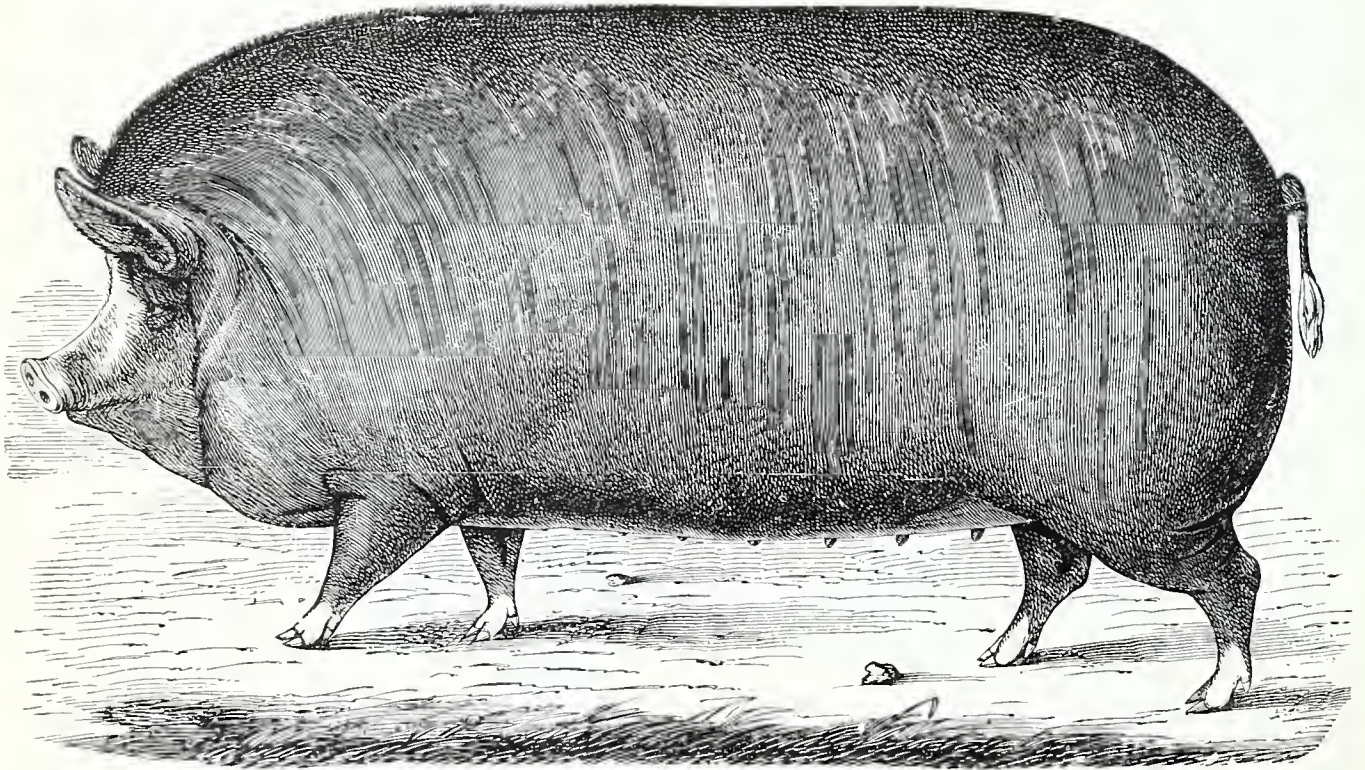
"The hogs, impelled by hunger, which drives away fear, would come out and eat. The ration was not large, only enough to sustain life until the weather would permit them to again forage for themselves. By the way, they often became adepts in the art of sustaining life, and frequently supplemented scanty rations by visits to neighboring cornfields. They were destructive enemies, as their long noses and long, active legs enabled them to go through or over nearly any fence.

"As regards breeds, no particular one was recognized. They were generally white, with spots of various colors, though sandy-colored ones were most common. Many of them were ornamented with wattles depending from the jowl. A few years later a white breed called the 'Irish Graziers' was introduced. We farmers did not take kindly to the new breed, and no permanent change was then effected in the hogs of the locality. A neighbor afterward secured a 'China pig,' as he called him. He was a great improvement on anything ever seen before in that region, yet wrought no particular change in his owner's herd. 'Tis said 'new ideas travel slowly,' and certainly one of the slowest was the desire among farmers of that day to introduce improved stock, especially hogs. But there were reasons for this

You may see shabby farms and farm-houses, but if there is a hog-lot adjacent, you will see fine and sometimes very fine hogs in it. Very seldom do you see anything approaching to the 'razor-backs' and 'hazel-splitters' of 'ye olden time.'"

Berkshires and Poland-Chinas are the pride of the Missouri hog-raisers. Mr. N. H. Gentry, Chairman of the Missouri World's Fair Commission, is a very successful Berkshire breeder, and the following extract from the *Breeders' Gazette* shows how an expert regarded some of the Missouri Berkshires raised on Mr. Gentry's farm:

"Mr. Gentry's famous show boar and sire, Longfellow, was first in the ring for aged boars. We need not repeat the compliments so freely bestowed on this remarkable hog. It may be noted, however,



besides the expense. The country was newly settled, and the people as a rule were poor, and their own habitations not very luxurious. With many it was a struggle to live, and necessarily the stock kept had to be as near self-sustaining as possible. No time for commodious hog-houses, and ground feed of all sorts and kinds. But as time passed, new people and new ideas flocked to the West. Numerous emigrant trains had to be provisioned for crossing the plains, and with a paying market for bacon, the farmer began to need and want hogs that could be early converted into meat, which meant money.

"The Berkshires were introduced in different localities, and perhaps were the foundation of the solid improvement of the western hogs, and thus it has gone on. All improved breeds have been introduced and all have flourished, and though our favorites—the Poland-China—are in the van, there are plenty of other good hogs. Indeed, nowhere will you find more and better hogs than in the West.

that Alexander McDonald, Esq., live stock editor of the *Mark Lane Express* (London), after a thorough examination of Mr. Gentry's exhibit, particularly the pen of yearling sows, all the get of Longfellow, volunteered the statement to the writer: 'You can beat us on hogs.' In yearlings Messrs. Renfro held the winning card in Model Duke, a Longfellow boar, one of the evenest, smoothest, best-fitted boars exhibited of late years. He has a grand back, with arched rib, an unusually good head, heavy ham, smooth shoulder and large heart girth, and he is, moreover, full of quality. Mr. Moore's yearling, bred by Mr. Gentry, got by Lenister Duke, out of Charmer, by Sovereign 2d, was second on the prize list, and he is a hog of great substance, even wider than Model Duke, although lacking the evenness and finish of the blue ribbon winner. Mr. Gentry's Handsome Prince led the under-one-year class. Mr. Gentry's Royal Beauty 17th, one of the medium-sized but very choice Royal Beauty sows, won in the aged

sow class and celebrated her victory by farrowing a fine litter of pigs immediately after. In yearlings, from that grand pen the get of Longfellow and the other entries, Mr. Gentry's Duchess 71st was chosen to wear the blue and Duchess 73d was decorated with the red. It matters little which ones are picked from this half dozen, so uniformly good are they. In the class for sows under twelve months, Mr. Gentry's Handsome Princess, a very finely fitted, plump, even sow won first place.

"Messrs. Renfro's Longfellow boar, Model Duke, compelled his famous sire and all the rest of the Berkshire boars to 'take a back seat' in the sweepstakes ring, as the male championship fell to him.

"Gentry's Duchess 71st was adjudged best female, and the same exhibitor won both first and second herd awards—first with Longfellow, Duchess 71st, 72d, 73d and 74th, and second with Handsome Duke and Duchess 70th and 75th, Royal Beauty 17th and Ruby 9th. Mr. Gentry's young herd, headed by Handsome Prince and all the get of Handsome Duke, captured the ribbon. Longfellow and his wonderful showing of sows could not be denied the award for boar and his get."

Communications were addressed to a large number of Missouri Berkshire breeders, asking them to furnish for use in this work records of some of their numerous flocks, Missouri Berkshires having been winning prizes right and left for years. Unfortunately nearly all of them have been too busy to respond, and hence Mr. Gentry's triumphs are necessarily given more prominence than would have been the case had a full response been received. Mr. John G. Springer, Secretary of the American Berkshire Association, reports that the number of Berkshires recorded is 26,518, of which nearly 3,000 are owned in Missouri. The 26,000 includes all Berkshires that have been recorded in America, Canada, Great Britain and Ireland, so that Missouri can claim more than one-ninth of the recorded Berkshires in the world.

"It may also be of interest," writes Mr. Springer, "that the highest price known to have been paid for a single head of swine of any breed has been to a citizen of Missouri, Mr. N. H. Gentry, of Sedalia." The transaction referred to in this letter was probably the sale by Mr. Gentry of a hog to Mr. Andrew Smith, of San Francisco, for the sum of \$750. This took place in June, 1889, and broke all records. From the same herd prizes and medals for Berkshires and competitions against the world were won at New Orleans, and among other recent fairs and exhibitions in which Missouri Berkshires have stood head and shoulders over all comers may be mentioned State fairs in Kansas and Missouri almost every year since 1874, the Western National Fair in 1880, the Illinois State Fair in 1886, the Nebraska State Fair in 1888 and again in 1889. The list does not pretend to be complete, and is merely intended to serve as a slight index of the success which this particular breed of hogs raised in Missouri has won.

In response to a letter to Mr. Ira K. Alderman, secretary of the Standard Poland-China Record Association, that gentleman communicated the following letter, which is published in full:

"For a brief history of the Poland-China hog, I refer you to Volume I. of the *Standard Poland-China Record*, at pages 22 to 33 inclusive. This is purely an American hog. He has had trouble in his day, and perhaps more in the name than any one fact. The name Poland-China was agreed on at a national convention held at Indianapolis, Ind., in 1872, but the name does not indicate his origin. The breed originated in the Miami Valley, in Ohio.

"I am unable to trace his first immigration to Missouri soil, but he has been here long enough to have developed on Missouri soil the highest-priced hog of any breed in the world, if I am not misinformed; to which fact I will recur later on.

"There are five recording associations in the United States for the record of pure-bred Poland-China swine, viz.: The Ohio Poland-China Record Co., Dayton, O., organized about 1878; the American Poland-China Record Co., West Liberty, Iowa, organized about 1879; the Central Poland-China Record Company, Indianapolis, Ind., organized about 1880; the Northwestern Poland-China Record Co., organized about 1881; and the Standard Poland-China Record Association, organized in 1886. We are mainly concerned for the Standard, because it is a Missouri institution, reaching out wherever the Poland-China grunt is heard. The Standard is not an outgrowth of a desire to multiply records, but rather the opposite. The four older records refused to consolidate, and neither was in itself complete. Missouri breeders conceived the idea of a complete record in and of itself, that would not be dependent on one or more other records for its existence, for the complete and perfect study of the pedigree of any animal recorded in it. The result has proven the wisdom of its founders. There are now over 400 shareholders in the Standard, representing sixteen States and two Territories, and patrons in about twenty-five States or more. Its stock is worth 100 per cent premium, and for three years it has been paying 20 per cent dividends on the par value of its stock, and is becoming the popular record with breeders.

"There are 150 stockholders of the Standard in Missouri, most of whom are active breeders of Poland-Chinas, while there are as many more active breeders who are patrons, besides the large number who are patrons of one or more of the other records. Beyond doubt, there are more farmers engaged in the breeding of Poland-China swine, in the State of Missouri, than of any other breed. I think no man will question this statement, and some will say that more are engaged in the breeding of the Poland-China than in all the other breeds. I incline to this opinion, and the statement will almost hold good in all the States.

"D. F. Risk, Weston, Mo., is one of Missouri's pioneer breeders, and is entitled to the distinction of having bred one of the highest, if not the highest

priced hog in America. He handles the Poland-China. Free Trade 4420 S. R. was sold by Mr. Risk to C. A. Marsh, Jesup, Iowa, for \$200, who resold him to Bebout, Finch & Co., Rushville, Ind., for \$800. He is now at the head of Mr. Bebout's famous herd.

"F. M. Lail, Marshall, Mo., is probably second on the list for high prices and premiums, and has paid prices ranging from \$50 up to \$250 for use in his own herd. His famous boar, Victor 2994 S. R., was sold for \$300.

"W. P. Hayzlett, Bolckow, Mo., was a pioneer breeder, though now out of the business. He was a very successful exhibitor, and frequently had sales ranging from \$50 up to \$150. Few men have done more to develop this breed in Missouri than Mr. Hayzlett, and especially in Northwest Missouri.

"F. Bellows & Sons, Wm. T. Doyle, W. T. Garrett, Dr. J. W. Dean, I. V. LaTourette and others, Maryville, Mo., have been foremost breeders in their part of the State, and Benj. F. Bagby, Job Goslee and others, Skidmore, Mo.; Judge J. Shamberger, White Cloud, Mo., and M. C. and J. H. Baublitts, Graham, Mo.; B. F. Gilmore, Gaynor City, Mo., and D. D. Bollinger, Hopkins, Mo., have been very prominent and successful breeders for the past ten or fifteen years; some even for a longer period. These latter names all belong to Nodaway county, and have been the means of adding a very large number to the list of successful breeders in the county in the last few years.

"Thos. F. Miller, Avenue City, Mo. (Andrew county), is entitled to be classed as a pioneer breeder, and very successful. Robert I. Young, St. Joseph, Mo., and many others, might be mentioned. Mr. Miller will have one of his own breeding at the World's Fair, to be exhibited by Mr. Young.

"E. S. Stoddard, Monroe City, Mo., is entitled to the distinction due a successful and honorable breeder's career. Messrs. Brown & Luce, Shelbina, Mo., are also prominently connected with this industry.

"C. G. Sparks, Mt. Leonard, Mo., is one of the foremost breeders in the State. He has been a successful prize-winning breeder, and held high in prices, and has readily commanded them.

"If time were given to gather up records of sales, Missouri would stand foremost in the past ten years in the development of famous breeders, and has led the world. This is not only true as to Poland-Chinas, but may be clearly said of her as to Berkshires also.

"The names of Jay P. Blake, St. Louis; Monsees & Wiley, Smithton; W. B. Wallace, Kingsville; T. E. Wachtel, Savannah; Vivion & Alexander, Fulton and McCredie; T. C. Taylor, Green City; Mrs. M. V. Strickler, Craig; John E. Stone, Wintersville; T. J. Stemmons and J. R. Campbell & Sons, Avilla; F. H. Schooler, Rockport; Risk & Gabbert, Weston; W. M. Penniston & Son, Stet; C. W. and F. E. Nuss, Tina; D. F. McClintock, Keystone; J. B. Leggett, Palmyra; D. M. and J. W. Jennings, Centralia; P. J. Householder, Osborn; H. N. Holdeman, Carthage; W. A. Hill, Benton; Goodding Bros., Atlanta; W. S. Duncan, Clinton; W. C. Dickinson, Rolla; E. B.

Cooper, Trenton; E. E. Axline, Oak Grove, and Marcus Adams, Half Rock, Mo., are a few of the many successful breeders, and have been selected mainly to show that Poland-China breeders are generally scattered over the State, and are not confined to a locality or to a few.

"This is the prevailing breed, and undoubtedly more breeders of grade hogs improve their stock by crossing with the Poland-China boar than with any other breed. The vast swine industry of Missouri will demonstrate this fact in almost every feeding pen in the State for the general market. This speaks well for the American breed of swine, the youngest breed of any prominence."

POULTRY.

[From data furnished by Mr. G. W. Fry, President of the Missouri State Poultry Association.]

Missouri is one of the most important poultry and egg-producing and exporting States in the Union, its record for a single year being 28,049,177 pounds of poultry and 14,000,000 dozen eggs actually exported from the State, in addition to what was raised and used locally. The annual value of the poultry and eggs exported is little, if any, less than \$4,000,000, and hence it is difficult to overestimate the importance of this industry.

A great deal of Missouri's growth in this respect is due to the attention which has been paid during the last quarter of a century to breeding up. Twenty years ago any bird which would run around, lay a few eggs and take care of itself, was considered good enough, but of late years it has been fully realized that, as in cattle, so in poultry, the better varieties eat little more than the common ones, and are many times more productive. When the cheap barn-yard fowl held sway, it is needless to add, there was very little exporting from the State in this line of industry, the product not being anything more than was required for home consumption. To-day, however, the attenuated, unhappy-looking bird, which was so common in the 70's, is quite an exception, for, where pure-blooded fowls are not raised exclusively, so much good blood has been infused by crossing, that the stock is heavier and much more desirable.

As is usual in matters of this kind, the improvement in the breed first led to a vast increase in the demand, and this demand in itself led to still greater increase in determination of breeders to confine themselves exclusively to first-class stock. The Missouri breeder has long since come to the conclusion that there is no such thing as a best breed in poultry, but the four favorite varieties are light Brahmas, Barred Plymouth Rocks, Silver Wyandottes and single comb Brown Leghorns. Those who have been breeding for size have chiefly utilized the Asiatic class of fowls which are found to breed very satisfactorily with the hardy American fowls of the State. A very large number raise these heavy fowls pure, but those who make egg production their specialty have leaned more favorably towards the lighter and more active breeds. A careful estimate of the poultry industry of the State shows that the

value of the annual product now exceeds \$13,000,000, or three times greater than the amount mentioned as the value of the surplus product exported from the State. The large cities of St. Louis, Kansas City and St. Joseph, consume an enormous quantity of this product, and no official record is kept of the amount thus withdrawn from the export trade.

For the year 1891, the last year for which returns are complete, 14,000,000 dozen eggs were sold outside the State at an average price per dozen of 12½ cents, and the 28,000,000 pounds of surplus poultry averaged close upon ten cents per pound. The excellence of these products accounts for the prices being well maintained, and it is an acknowledged fact that, no matter how rapidly the Missouri poultry keeper increases his facilities for production, the market calls for and takes off his hands all he can spare. The figures and calculations do not include the higher grades of poultry, which are sold at what may be called fancy prices.

Many breeders of fancy stock in Missouri ship eggs and choice birds to States many hundred miles distant, and this industry is rapidly growing. It is estimated that the value of the marketed surplus product of Missouri can easily be brought up to \$9,000,000 when a few of the counties which have not yet joined in the procession recognize the importance of improving their stock. It is to be noted that there is very little money made out of shipping eggs or poultry from common stock, and it is only when the flesh and egg-producing powers of poultry are increased by the infusion of good blood, that anything bordering upon a profitable industry is built up. The records from the various poultry breeders as

to the varieties kept will be read with interest. Out of every 100 breeders ten raise light Brahmas, and one the darker birds of the same family. The following table, carrying out this idea of percentage, shows how many breeders out of every hundred raise the different varieties named:

Light Brahmas.....	10	out of every hundred.
Dark Plymouth Rocks.....	10	" " "
Silver Wyandottes.....	10	" " "
S. C. Brown Leghorns.....	10	" " "
Black Langshans	9	" " "
Bronze Turkeys	8	" " "
Partridge Cochins.....	4	" " "
Buff Cochins.....	4	" " "
S. S. Hamburgs	4	" " "
White Plymouth Rocks.....	3	" " "
R. C. Brown Leghorns.....	3	" " "
Houdans	3	" " "
B. B. Red Game.....	2	" " "
S. C. White Leghorns.....	2	" " "
Pekin Ducks.....	2	" " "
Golden Wyandottes.....	1 ³ / ₄	" " "
White Wyandottes.....	1 ³ / ₄	" " "
Golden S. Bantams	1 ¹ / ₂	" " "
Silver S. Bantams.....	1 ¹ / ₂	" " "
Pekin Bantams.....	1 ¹ / ₂	" " "
B. B. R. Game Bantams.....	1 ¹ / ₂	" " "
White Cochins.....	1	" " "
Dark Brahmas.....	1	" " "
R. C. White Leghorns.....	1	" " "
Black Minorcas.....	1	" " "
Black Spanish	1	" " "
White Holland Turkeys.....	1	" " "
Embdn Geese.....	1	" " "



FISH.

[From data furnished by Mr. W. W. Ellis, General Manager of the Missouri Association for the preservation of game, fish and song-birds, and Mr. E. Cunningham, Fish Commissioner.]

MISSOURI is one of the best-watered States in the Union, and it is known throughout a large section of the country as one of the most delightful retreats for the angler to be found in the New World. The Gasconade and its tributaries form what may be aptly termed a sportman's paradise, and anglers come from all parts of the country to enjoy a few days' good sport there. Its fame has not yet reached the point deserved, but it is increasing year by year, and a great number of anglers visit Missouri in preference to the lakes of the North when indulging in their annual delight. There are, practically, fifty-five species of fish known to exist in the waters of Missouri, and the following list gives the names by which they are best known:

Missouri Sucker,	Blue Cat,
Crappie,	Eel Cat (Shin Cat),
Pickerel,	Channel Cat,
Dogfish,	Gauchon,
Sand Pike,	White Rock Sturgeon,
Wall-eyed Pike (Jack Salmon),	Black Rock Sturgeon,
Yellow Perch,	Slim-nosed Sturgeon,
Yellow Perch, Northern,	Blunt-nosed Sturgeon,
Rainbow Trout,	Mirror Carp,
Black Bass, large mouth,	Goldfish,
Black Bass, small mouth,	Japanese Goldfish,
Red-eyed Perch,	Eels,
Sunfish,	Mud Sucker,
Sunfish (Goggle-eyed Perch),	Gar Pike, long bill,
Brown Buffalo,	Alligator Gar,
Red-tailed Bream,	Bony Shad,
Copper-nosed Bream,	Moon-eyed Shad,
Sheep Head,	Skip Shad or Ohio Gold Shad,
Spoon-bill Sturgeon,	Speckled Trout.

Of the game fish, the most plentiful are the black bass and crappie, which are found principally in the lakes and rivers tributary to the Mississippi river. The large-mouth black bass is found in large quantities in these waters, while the small-mouth black bass, recognized by sportsmen as the king of American fighting fish, is found chiefly at the head waters of streams tributary to the Ozark mountains, and notably in the Current, Meramec and Gasconade rivers and their tributaries, as well as in some of the tributaries of the White and Osage rivers. It is found that the small-mouth black bass will not

prosper in muddy ponds, selecting rather, as its habitat, cool, clear, running waters or deep lakes. Some of the largest small-mouth black bass ever found in the world have been caught in Missouri waters, six pounds being fairly common. The large-mouth black bass are represented in the State Exhibit by two magnificent specimens caught in Peter's Lake, and weighing eleven and a quarter and fourteen and a half pounds, respectively. A glance at these noble specimens of one of the most popular fish in America will encourage many thousand anglers to visit Missouri and enjoy sport which will include the catching of such soul-stirring spoil.

The crappie is looked upon by anglers as the best pan fish, and in its habits it resembles the bass very closely, though it is frequently found in shallower waters. The fish known as the pike-perch, the wall-eyed pike, the dory, the glass-eyed pike, the yellow pike, and more generally throughout Missouri as the jack salmon, is very plentiful in the State, being found in nearly all our rivers and very largely in the Black river. The smaller and more numerous variety, which is regarded as the best table fish, rarely exceeds three pounds in weight, but of the larger variety some have been caught weighing ten pounds and upwards. The whiteness of the flesh and its firmness, as well as its delicious flavor make the jack salmon quite a universal favorite, and those searching for it look only in clear, gravelly-bottomed rivers, and in lakes directly connected with them, the jack salmon carefully avoiding muddy bottoms.

The sturgeon, shad and sucker are to be found in great quantities in all rivers and lakes tributary to the Father of Waters, and, indeed, this fish may be said to be a feature of the Mississippi and its tributaries. The buffalo fish is very plentiful in Missouri, and forms, perhaps, the staple food fish among those who look upon this class of food as a portion of the daily diet of the family. The buffalo, as found in Missouri, weighs, generally, from eight to ten and fifteen pounds, though specimens are occasionally taken weighing as much as thirty and even thirty-five pounds. These are, however, exceptions, and the buffalo of commerce may be said to weigh about ten or twelve pounds. Catfish are found in abundance, and Mr. J. L. Smith, Fish Commissioner of Missouri in the year 1891, says of this variety:

"We do not now appreciate our several varieties of catfish, but coming generations will do so. The fish

is valuable for food, some of the smaller varieties living in running waters being as delicate as any of our native fish. As is known to all our people, the catfish is extremely hardy, and thrives in all our waters. To propagate him, it is only necessary to put the proper variety in waters suited to him, and then give such waters reasonable protection. The Mississippi river with its tributaries is the home of the catfish. The largest catfish of which I have authentic information, weighed 196 pounds, and was caught in the Mississippi river, near St. Louis. My authority is M. B. Curtis, the oldest fish dealer of St. Louis. The largest catfish which came under my personal observation was caught in the Mississippi river, near St. Louis, in 1879, and was presented to Prof. Spencer F. Baird, for the National Museum, by the Missouri Fish Commission. It weighed 150 pounds, and, when examined, proved to be an undescribed species. It has been named by Professors Jordan and Gilbert, *Ictalurus ponderosus*—Bean—great catfish. They think this variety of catfish attains a larger size than any other.

"There are small varieties which never exceed two pounds in weight, and probably much less. The Missourian who visits the magnificent Fairmount park of Philadelphia is amused to read the signs on the little restaurants by the roadside, "catfish and waffles," showing the dish to be a delicacy in the estimation of the inhabitants of the Quaker City. Catfish spawn in spring and summer. The eggs are deposited in lumps or masses varying in size from a small marble to a hen's egg. The spawn and young fry are carefully guarded by the parent fish until able to care for themselves. From experiments made by Col. Marshall McDonald, U. S. Fish Commissioner, and Commissioner for Virginia, he concludes that the male acts as guard. This care by the parent, and the formidable spines, or stickers, with which the catfish is armed, account for his ability to hold his own in our depleted waters. It is a veritable exemplification of the 'survival of the fittest.' "

The largest catfish caught recently in Missouri weighed 110 pounds, and was caught at the junction of the Mississippi and Missouri rivers.

Efforts have been made, from time to time, to introduce trout into Missouri, the Fish Commission having devoted much arduous work in this direction. So far, however, much success does not appear to have followed this effort. The only place in the State where trout can be found in any great numbers is in St. James spring, at the headwaters of the Meramec river. Some years ago, Ex-Fish Commissioner Dr. Steadman heard of a few good specimens of trout having been caught in the Niangua river, a tributary of the Gasconade, near Lebanon. Missouri, however, cannot claim to be a good trout State, and it is probable the waters are not sufficiently cold for this variety of fish. The Fish Commission of the State is at the present time devoting nearly the whole of its attention to the introduction of carp into Missouri. Thirty-five States and two Territories are at the present time trying to acclimatize the German

carp, which fish was brought into this country from Holland, by Capt. Henry Robinson, a little more than sixty years ago. In May, 1877, Mr. Rudolph Hessel arrived from Bremen with 345 carp for the United States Fish Commission, and in 1879, the work of distributing these commenced. In that year 6,203 carp were distributed, and the number has grown very rapidly ever since. The first carp was introduced into Missouri in the fall of 1879, several parties receiving consignments of twenty fish each from the United States Fish Commission.

The Commission ponds for this fish are at St. Joseph, Neosho and in Forest park, St. Louis. In Europe, the carp is regarded as a table fish of great value, ranking as high as the salmon, but so far, in this country, and especially in this State, the fish has scarcely attained as high a popularity as the salmon or buffalo, or as the black bass or crappie. It is, however, felt that the carp might be firmly settled in Missouri and prove a valuable addition to the number of excellent fish already at home in its waters. This opinion is not held by all sportsmen and anglers, many of whom are of opinion that much greater results could be obtained were the money devoted to the more rigid enforcement of the game laws and the prevention of dynamite being used for fish-taking purposes. At the same time, all recognize the good work done by the Commission, which gives away carp to anyone who will stock ponds with them.

As may easily be expected, the mighty waters of the great Mississippi have in them a number of enemies to game and table fish. The greatest of these, both in regard to its size and the extent of its depredations, is the fish known as the gar and alligator gar. One of these was captured at the mouth of the Meramec river not long ago weighing 107 pounds and measuring seven feet nine inches in length. The destructive powers of a fish of cannibalistic tendencies of this size can be easily understood, and much interest will be centered in the specimen on view in the Missouri fish exhibit, which measures five feet four inches in length and weighs seventy-five pounds. The gar is universally despised by fishermen, who destroy it with great pleasure whenever opportunity arises.

The dogfish is another enemy to sport and angling. It is very much smaller than the gar, but it makes up in meanness what it lacks in size. It is a repulsive-looking object with four legs, and resembles the alligator in many respects. It has a strong appetite for spawn, and, as it seems to have an unlimited supply of cunning, it manages to hover around the headwaters of the rivers and carry on its work of destruction to a deplorable extent.

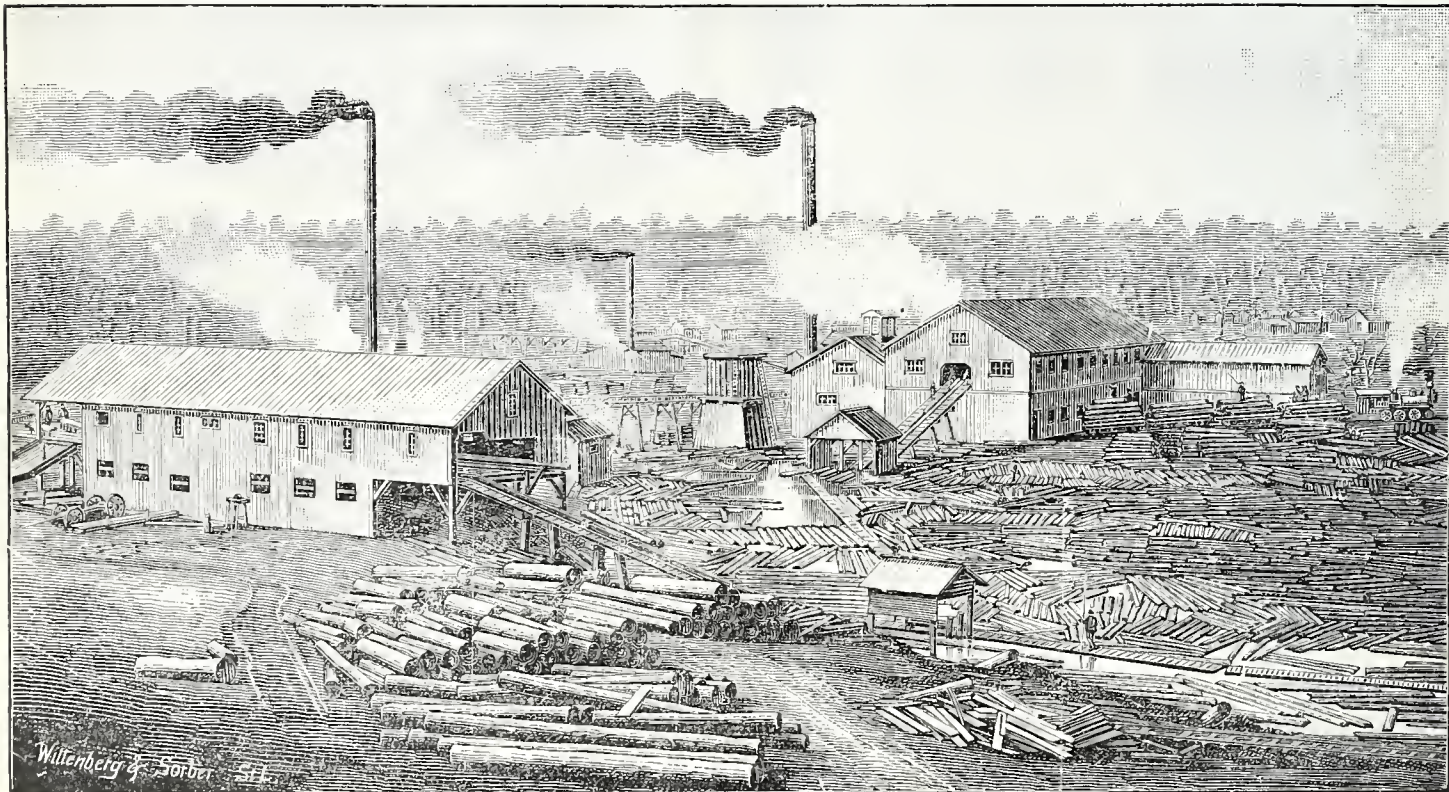
With these slight drawbacks, Missouri may be described as an ideal State for the angler. Its fish are as valuable as they are numerous, and from a commercial as well as a sporting standpoint, the fish of Missouri occupy a most important position among its numerous advantages and possessions.

THE FORESTRY OF MISSOURI.

[By Executive Commissioner Gwynn.]

WHEN the Missouri World's Fair Commission undertook to collect forestry statistics relative to the available amount of each of the commercial timbers within the State, or to approximate the acreage covered by each of the respective species of the commercial timbers, it was confronted with the fact that the census reports and State and county records were alike strangely silent on this subject. In fact,

approximately correct. In some instances there is reason to believe that the estimate is a very good one, in other instances there is cause to fear that the approximation is not as close as could be hoped; but, in view of the fact that no careful estimate has ever been made under National or State authorities, it is the very best that could possibly be done in the time at the disposal of the Board for collecting the data.



there was no data of any kind from which they could compile even an approximate estimate of the amount of any species of commercial timber within the State of Missouri. To attempt to make a forestry exhibit without some data of this kind would have been a very stupid performance on the part of the Board, and in order to secure the necessary information, a capable statistician was employed, who, by visiting the representative lumber, tie and timber men of the State and by correspondence with county assessors, clerks and other county officials, secured a large volume of statistics that we hope may prove

The estimate is as follows:—

<i>Species.</i>	<i>Acres.</i>
White Oak.....	1,067,559
Black Oak.....	361,480
Red Oak.....	104,785
Burr Oak.....	47,770
Post Oak.....	391,980
White Ash.....	21,514
Blue Ash.....	6,600
Hickory	77,849
Sycamore.....	62,298
Black Walnut.....	36,164

<i>Species.</i>	<i>Acres.</i>
Yellow Pine	289,980
Poplar.....	1,750
Cypress	31,400
Elm	72,352
Gum	205,800
Cottonwood	38,600
Sugar Maple.....	2,272

THE TIMBER OF MISSOURI.

[St. Louis Lumberman.]

The southeastern portion of the State of Missouri is covered by a forest growth of commercial timbers of many kinds that are unsurpassed for the quality of the product. The Austrian oak has, from time immemorial, been the standard by which all similar timbers were compared. A large trade in Missouri quartered oak has been worked up in Europe by an enterprising firm of hardwood manufacturers in Southeast Missouri. The representative of a large London lumber firm who recently visited this city, stated to the firm above alluded to, that the oak they were producing was fully equal to the best Austrian product.

The Oxley Stave Company, located at Poplar Bluff, in this State, has a plant worth \$1,000,000. The superintendent of this establishment told the writer that the same company had sixteen different stave factories located in different parts of the country, and that the very best products of them all were turned out of the establishment at Poplar Bluff, Missouri. From this establishment consignments of goods are shipped to nearly all parts of the world, even to Cape Town (Africa), Cairo (Egypt), Spain, France and Portugal. The cooperage sent to Africa is for palm oil; that sent to Spain, France and Portugal is for wine. There are large areas in Southern Missouri covered over with a fine growth of gum. These trees, although tall, lithe and graceful, were, until quite recently, thought to be worthless for commercial purposes; but of late years many uses have been found for this timber, chief among which is that of an interior finishing material. Very handsome residences in large cities are now being finished in this wood, and it is said to make a very beautiful finish, and in Europe it is dignified by the appellation of "Satin Walnut." It is also being largely used in the manufacture of sewing machine tops, butter dishes and table tops.

There is no place in the United States where the ordinary varieties of commercial timber attain such enormous growth as in the rich alluvial lands of Southeastern Missouri. White oak trees of six and seven feet in diameter are not uncommon; sycamores, eight and nine feet in diameter, are also very common; cottonwoods of enormous growth are also very frequent in this locality; and specimens of all of these mammoth growths will be placed on exhibition at the World's Columbian Exposition. The forestry resources of Southeastern Missouri have in no sense of the word been heavily drawn upon at this date, and they will continue yet for many years to be a rich source of revenue for this part of the country and to contribute the finest quality of commercial woods to the stock of the world.

Missouri is not so densely and thoroughly timbered as some other States, and yet its resources in this respect are by no means inconsiderable. In truth, Missouri makes a very creditable showing in the amount and variety of her standing timber, as behooves a great State singularly blessed in respect of natural advantages. Possibly one-fourth of the total area north of the Missouri river is forest land, and one-half of that south of the same stream. The general line of demarkation between the prairie and timbered sections cannot be described to a nicety, because even the extreme western parts of the State are dotted, and its streams fringed, with forests of greater or less magnitude; but, for all practical purposes, that part of the State lying east of a line drawn from Hannibal to Jefferson City, and thence south to the Arkansas border in Stone county, may be regarded as the more heavily timbered section. Over this large area are to be found an almost infinite variety of hardwoods, besides yellow pine, in the direction of Arkansas, and many of the woods that are technically "soft." For instance, there are three sorts of locust, three of walnut, four of maple, four of gum, six of hickory and eighteen of oak.

The distribution of the different species of wood is admirable, on the whole, for mill work. There are regions of many miles in area over which only one or two, and certainly not more than three or four, varieties occur. In the counties of Mississippi, Stoddard, Scott, Pemiscot, Dunklin, New Madrid and Butler, in Southeastern Missouri, the prevailing timber is white oak, gum, poplar, cypress and one or two varieties of ash. The oak of this region is among the best found in the State, and the gums are beginning to be used to a large extent now as a substitute for black walnut for many uses. The pine timber lands extend through Jefferson and Washington counties in a southeasterly, southerly and southwesterly direction, embracing Madison, Wayne and the northern part of Butler on the east, touching the Arkansas line in Ripley county. To the westward they pass through Reynolds, Carter, Shannon, Oregon, Howard, Texas, Douglas, Ozark and Taney counties. The hillsides and valleys in some of these counties are also well timbered with oak, hickory and ash.

Much of the timber of Missouri is exceptionally valuable, as a recent writer on the subject points out. The swamp oak, for example, which is abundant in the southern part of the State, is the best variety of wood used for ship-building, with the single exception of live oak. Cypress, which also occurs in the extreme southern counties, is, of course, known to be a "coming wood." The growth of the forests in this State are, moreover, very heavy in some districts. Pine on the plains of Shannon, Carter, Reynolds, Oregon and Howell counties averages, in many places, from 8000 to

10,000 feet to the acre. Ash, oak, maple and walnut are also dense, and heavy over large regions. Sycamores have been found in the State measuring 43 feet in circumference and 65 feet in height, if we may trust the statement, and cottonwoods have grown to a height of 125 feet, with a girth of 30 feet. Some very large Spanish oak, black walnut and cypress trees have also been cut in the lower portion of the State.

On the southern slope of the Ozark range, west of the belt of oak forests in Eastern Missouri, along the line of the Iron Mountain railway, is a rich belt of yellow pine covering the two southeasternmost tiers of counties of the State. Fully 65 per cent of the area is yellow pine. It is of the short leaf variety, is remarkably free from resin and turpentine, and the lumber made from it is well adapted for the interior finishing of houses. There are many magnificent trees in this region, and 4,000 to 6,000 feet of lumber are now cut to the acre, leaving the smaller growth intact.

The timber in Southern Missouri varies with the latitude. In the southeastern portion of the State, the poplar, the sweet, black and yellow gum, the pine and cypress, the birch, the beech and the tulip tree have their home, and are scarcely, if ever, found in the northern or western counties, but through the entire region of Southern Missouri. The forest trees are oak, walnut and hickory, elm, maple, ash and locust, with their varieties, cherry, cottonwood, willow, persimmon, hackberry, mulberry, box elder, sassafras, growing to tree size, and, in the southwest, the chestnut and the chinquapin.

A bill has been introduced in the State Legislature at Jefferson City providing for the incorporating of booming companies on the rivers of Missouri, especially on the Current river, the principal and lowest town on which is Doniphan.

This plan is feasible and practical, and if no opposition be made to it, it will doubtless be carried out sooner or later. The estimate, 400,000 carloads, of the lumber in easy reach of Current river is probably no exaggeration. The forests in this section are immense and the timber is of the finest and of the best varieties. As the matter now stands, the greater part is naturally tributary to St. Louis, and, with the proper efforts on the part of St. Louis capi-

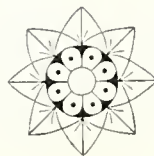
talists, the trade would preponderate in favor of that place.

Doniphan is the largest town on Current river. It is situated ten miles north of the Arkansas line and immediately below the great pine belt. It is 200 miles from St. Louis, and is in direct railroad communication with it by means of the Doniphan Branch of the St. Louis, Iron Mountain & Southern Railway. It has a great advantage over any other point on Current river in the fact that it is below all the pine and most of the hard timber tributary to that river. Every log in reach of the river for one hundred miles up could be rafted to this place, sawed and shipped directly to St. Louis. Every log that can be boomed at Van Buren or Eminence could also be floated to this place, while for a distance of thirty-five miles above here no railroad touches the river, and the vast amount of timber in that belt can be shipped only through this place. Some of the largest creeks which run back into the pineries afford facilities for running logs into the river for considerable distances back in the hills during high water, notably Big Barren creek, which empties into the river twenty miles above here.

The valley of this creek extends twenty or twenty-five miles up into the heart of one of the finest pineries in the Union, which as yet is untouched. By cleaning out and straightening the channel of this creek, it could be made, during heavy rains, the means of getting all this timber to the river, and thence to the railroad at Doniphan.

But the timber does not consist solely of pine. Vast quantities of hard timber, especially oak, are in reach of this place. To show the resources of this section in this particular, it is only necessary to cite what has been done in the hard timber land on the Doniphan branch, twenty miles long. Since its building, six years ago, millions of ties and staves, and piling and lumber in immense quantities, have been shipped over it, and still the good oak timber within handling distance of the road is not nearly exhausted.

Ash, hickory and gum are also in reach of this place. No better point could be selected for the establishment of wood factories, mills, etc. It is true that there is to be an enormous business done in this section of Missouri at no distant date, and some city or cities will derive great benefit from it. Capital is all that is needed to develop it.



THE EDUCATIONAL SYSTEM OF MISSOURI.

[The sketch of the Public School System of the State is from the pen of Hon. L. E. Wolfe, Superintendent of Public Schools; the article on the State University is by Prof. R. H. Jesse, of Columbia; and Prof. Geo. L. Osborne contributed the sketch of the Normal Schools. Acknowledgment is also made of assistance from Prof. J. G. Babb, Proctor of the State University.]

THE Public School System of Missouri consists (1) of the State institutions; and (2) of the public schools proper. The State institutions are the State University, three State Normal Schools for whites, and one State Normal School (Lincoln Institute) for the training of colored teachers.

STATE UNIVERSITY.

The University of the State of Missouri was located at Columbia, Boone county, on June 24, 1839, by commissioners appointed and empowered to select a site under an act of the General Assembly, February 8, 1839. To secure the location at Columbia, citizens of Boone county subscribed and paid the sum of \$117,900. The main building was begun in 1840, and courses of instruction in academic work were opened on April 14, 1841. A department for the theory and practice of teaching was established by act of March 11, 1867. In the following year (1868), the State, for the first time, gave the University pecuniary aid. The College of Agriculture and Mechanic Arts, and the School of Mining and Metallurgy were made a department of the University by act of February 24, 1870. The School of Mining and Metallurgy was located at Rolla. To secure the location of the College of Agriculture and Mechanic Arts at Columbia, the citizens of Boone county subscribed and paid the sum of \$90,000. The Department of Law was opened in October, 1872; the Department of Medicine, in February, 1873; and the Department of Engineering, in September, 1877. The Experiment Station was established under act of Congress, March 2, 1887. The Missouri State Military School was created a department of the University by act of the General Assembly, in 1889. On January 9, 1892, the main building of the University was destroyed by fire. In the following March, the General Assembly, in special session, gave the University for buildings and equipment the sum of \$236,577. In this sum, however, was included subscription of \$50,000, donated by the citizens of Boone county. In March, 1893, the fund for buildings and equipment was increased by a second appropriation of the General Assembly of \$264,000, and a special appropriation of \$25,000 additional was made for a new building at Rolla.

The foundation and the maintenance of the University rest on:

(a) The Old Seminary Fund, \$122,000, at six per cent.

(b) The New Seminary Fund, act of March 29, 1872, \$100,000, at five per cent.

(c) Congressional Land Grant Fund, act of July 2, 1862, \$317,000, at five per cent.

(d) The United States Experiment Station Fund, \$15,000 per annum.

(e) Fund from the act of Congress of August, 1890 (for the year 1892-93), \$17,023.

(f) 55,000 acres of unsold land.

(g) The Anthony W. Rollins Aid Fund, interest on nearly \$40,000.

(h) The Jas. S. Rollins Scholarship, \$6,000, at five per cent.

(i) Various gifts by individuals, as foundations for prizes.

(j) Entrance and other fees.

(k) Endowment granted by the Thirty-sixth General Assembly, \$646,958.23, at five per cent.

(l) Buildings, grounds, libraries, and equipment, valued at \$780,000 (\$700,000 at Columbia, \$80,000 at Rolla).

(m) Appropriations for specific purposes by the Legislature of the State.

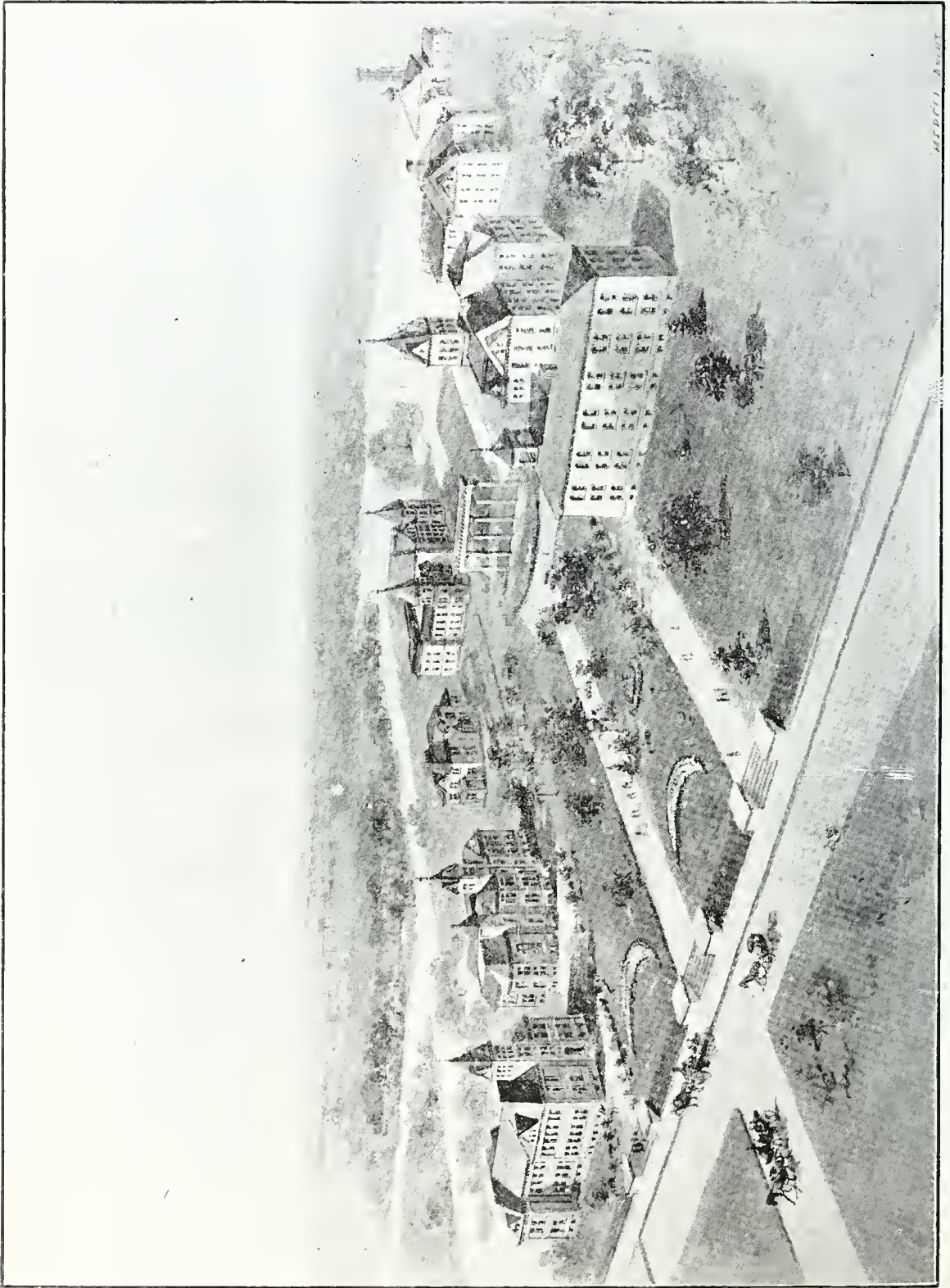
These appropriations have amounted to over \$1,000,000 since March, 1891, but in this sum are included the amounts entered under (e) and (j). Besides providing for her University (which is the head of the Public School System) and for three normal schools, Missouri gives annually, for the support of her elementary public schools, the third part of her total State Revenue Fund. This aid from the State is added to the local school tax. These schools receive also the income at six per cent upon an endowment of \$2,909,000, and at five per cent upon an endowment of \$231,000.

RELATION TO HIGH SCHOOLS.

For the last three years a steady effort has been put forth to articulate the University courses with those of the best high schools of Missouri. The University has submitted the following preparatory courses which are now required for admission to the Freshman Class in Arts, Letters and Science:

First Year.

First Semester.—A. B.—	Mathematics.....	*5
“ “ “	Latin.....	5
“ “ “	Physiology and Hygiene ..	4
“ “ “	Zoology	3
“ “ “	†Military Science or Book-Keeping.....	3



UNIVERSITY OF THE STATE OF MISSOURI.

First Semester.—L. B.—Mathematics.....	*5
“ “ “ Latin.....	5
“ “ “ Physiology and Hygiene...	4
“ “ “ U. S. History.....	3
“ “ “ †Military Science or Book-Keeping.....	3
“ “ S. B.—Mathematics.....	5
“ “ “ Latin, German or French..	5
“ “ “ Physiology and Hygiene...	4
“ “ “ U. S. History.....	3
“ “ “ †Military Science or Book-Keeping.....	3

Second Semester.—A. B.—Mathematics.....	5
“ “ “ Latin.....	5
“ “ “ English	5
“ “ “ Botany	3
“ “ “ †Military Science or Book-Keeping	3
“ “ L. B.—Mathematics.....	5
“ “ “ Latin.....	5
“ “ “ English	5
“ “ “ Botany	3
“ “ “ †Military Science or Book-Keeping	3
“ “ S. B.—Mathematics.....	5
“ “ “ Latin, German or French..	5
“ “ “ English	5
“ “ “ Botany	3
“ “ “ †Military Science or Book-Keeping	3

Second Year.

First Semester.—A. B.—Mathematics.....	5
“ “ “ Latin.....	5
“ “ “ English	5
“ “ “ Greek	5
“ “ L. B.—Mathematics.....	5
“ “ “ Latin	5
“ “ “ English	5
“ “ “ Physics.....	3
“ “ “ Zoology	3
“ “ S. B.—Mathematics.....	5
“ “ “ Latin, German or French..	5
“ “ “ English	5
“ “ “ Physics.....	3
“ “ “ Zoology	3

Second Semester.—A. B.—Mathematics.....	5
“ “ “ Latin.....	5
“ “ “ Physical Geography.....	5
“ “ “ Greek	5
“ “ L. B.—Mathematics.....	5
“ “ “ Latin.....	5
“ “ “ Physical Geography.....	5
“ “ “ American Literature.....	2
“ “ “ Civil Government.....	3
“ “ S. B.—Mathematics.....	5
“ “ “ Latin, German or French..	5
“ “ “ Physical Geography.....	5
“ “ “ American Literature.....	2
“ “ “ Civil Government.....	3

*The figure opposite each subject indicates the number of hours per week
† Optional.

The high schools have been accepting these requirements and falling into line to give success to this great scheme of unification of the schools of Missouri. To secure entry of approval, correspondence is solicited by the president and faculty with all the high schools of the State.

LIST OF APPROVED SCHOOLS.

The following schools have been approved, and their certificate will admit the bearer to the Freshman class without examination:

<i>Name of School.</i>	<i>Location.</i>
Bethany High School, 3*.....	Bethany.
California High School, 4.....	California.
Cameron High School, 4.....	Cameron.
Carrollton High School, 3.....	Carrollton.
Carthage High School	Carthage
Chillicothe High School, 4.....	Chillicothe.
Clinton Academy, 4.....	Clinton.
Clinton High School, 3.....	Clinton.
Cooper Institute, 3.....	Boonville.
Craig High School, 4.....	Craig.
Ft. Smith High School, 4.....	Ft. Smith, Ark.
Hamilton High School, 3.....	Hamilton.
Hannibal High School, 4.....	Hannibal.
Higginsville High School, 3.....	Higginsville.
Hooper Institute, 3.....	Clarksburg.
Independence High School, 3.....	Independence.
Jefferson City High School, 4.....	Jefferson City.
Joplin High School, 4.....	Joplin.
Kansas City High School, 4.....	Kansas City.
Kemper Family School, 4.....	Boonville.
Lamar High School, 3.....	Lamar.
Louisiana High School, 3.....	Louisiana.
Macon High School, 3.....	Macon.
Marmaduke Military Academy, 4.....	Sweet Springs.
Marshall High School, 3.....	Marshall.
Maryville High School, 4.....	Maryville.
Memphis High School, 3.....	Memphis.
Mexico High School, 3.....	Mexico.
Milan High School, 3.....	Milan.
Missouri Military Academy, 4.....	Mexico.
Mound City High School, 4.....	Mound City.
Mountain Grove Academy, 4.....	Mountain Grove.
Neosho High School, 3.....	Neosho.
Nevada High School, 3.....	Nevada.
Odessa High School, 3.....	Odessa.
Otterville College.....	Otterville.
Paris High School, 4.....	Paris.
Perry Institute, 4.....	Perry.
Richmond High School, 3.....	Richmond.
Salem High School, 4	Salem.
Salisbury Academy, 4.....	Salisbury.
Savannah High School, 4	Savannah.
Sedalia High School, 4.....	Sedalia.
Shelbina High School, 4.....	Shelbina.
Slater High School	Slater.
St. Joseph High School, 4.....	St. Joseph.
St. James Military Academy, 4.....	Macon.
St. Louis High School, 4.....	St. Louis.
Tipton High School.....	Tipton.
Trenton High School, 4.....	Trenton.
Wentworth Academy, 4.....	Lexington.
Westport High School.....	Westport.
Windsor High School, 3.....	Windsor.

Total number of Approved Schools, 53.

*The figure attached to the name of the school indicates the number of years in the course of study.

NOTE.—By an order of the Board of Curators, the student who attains the highest rank in the graduating class of any approved school will be permitted to enter the Academic Department of the University or the Agricultural and Mechanical College without the payment of the ordinary matriculation fees.

FACULTY OF THE UNIVERSITY.

By observation of the following list, the men who teach and the subjects taught will be made known:

- R. H. Jesse, LL. D., President.
 J. S. Blackwell, M. A., Ph. D., Chairman of the Faculty.
 J. G. Norwood, M. D., LL. D., Emeritus Professor of Physics.
 Paul Schweitzer, Ph. D., Professor of Chemistry.
 A. W. McAlester, A. M., M. D., Professor of Surgery and Diseases of Women and Children.
 W. Moss, M. D., Professor of Anatomy and Practice of Medicine, Secretary of the Medical Faculty.
 J. S. Blackwell, M. A., Ph. D., Professor of Semitic and Modern Languages.
 W. C. Tindall, M. S., Associate Professor of Mathematics.
 John C. Jones, A. M., Ph. D., Professor of Latin Language and Literature.
 E. A. Allen, Litt. D., Professor of English Language and Literature.
 W. B. Smith, A. M., Ph. D., Professor of Mathematics and Astronomy.
 Wm. W. Clendenin, S. M., Assistant Professor of Geology and Mineralogy.
 H. C. Penn, A. B., Assistant Professor of English Language and Literature.
 G. D. Purinton, A. M., M. D., Ph. D., Professor of Biology and Curator of the Museum.
 G. C. Broadhead, M. S., Professor of Geology and Mineralogy.
 J. A. Yantis, LL. B., Resident Professor of Law.
 B. F. Hoffman, L. M., Assistant Professor of Modern Languages.
 M. L. Lipscomb, A. M., Professor of Physics.
 W. B. Richards, M. A., Professor of Mathematics at the School of Mines.
 E. D. Porter, M. A., Ph. D., Professor of Agriculture, Dean of the College of Agriculture and Mechanic Arts and Director of the Experiment Station.
 A. L. McRae, Sc. D., Professor of Physics at the School of Mines.
 A. Martin, A. M., LL. D., Professor of Law and Dean of the Law Faculty.
 W. G. Manly, M. A., Professor of Greek Language and Literature.
 M. Updegraff, M. S., B. C. E., Assistant Professor of Mathematics and Astronomy, and Director of the Observatory.
 J. P. Blanton, A. M., Professor of Theory and Practice of Teaching.
 J. M. Burnam, A. M., Ph. D., Assistant Professor of Latin Language and Literature.
 G. A. Wauchope, M. A., Ph. D., Assistant Professor of English Language and Literature.
 C. W. Marx, B. E., Superintendent of Shop Work in Department of Mechanic Arts.
 John W. Connoway, M. D. C., M. D., Professor of Physiology (Human and Comparative).
 W. Shrader, B. S., Ph. D., Assistant Professor of Physics.

- E. G. Harris, C. E., Director of School of Mines and Professor of Engineering.
 F. Homburg, B. S., Assistant Professor of Chemistry.
 John D. Lawson, B. C. L., LL. D., Professor of Law.
 Paul Evans, M. D., Professor of Histology and Bacteriology.
 C. A. Keffer, M. H., Professor of Horticulture.
 Alex. Maitland, C. E., Assistant Professor of Engineering.
 F. C. Hicks, Ph. D., Professor of History and Political Economy.
 ———, Professor of Electrical and Mechanical Engineering (to be appointed soon).
 ———, Professor of Art.
 ———, Professor of Philosophy (to be appointed soon).
 E. W. Bowen, A. M., Ph. D., Assistant Professor of English Language and Literature.
 R. H. Hood, C. E., Professor of Civil Engineering.
 Leo Wiener, Assistant Professor of Modern Languages.
 S. A. Smoke, Lieutenant U. S. Army, Professor of Military Science and Tactics.
 John Pickard, A. M., Ph. D., Associate Professor of Greek and Archaeology.
 W. H. Seamon, B. A. S., Professor of Chemistry and Metallurgy at School of Mines.
 ———, Professor of Elocution.
 P. J. Wilkins, B. S., Instructor in School of Mines.
 Silas Dinsmore, Assistant in Chemistry.
 W. R. Dodson, S. B., Assistant in Biology.
 J. F. Paxton, A. B., Assistant in Latin and Secretary of the Faculty.
 T. L. Rubey, A. M., Instructor in the School of Mines.
 D. C. Jackling, Instructor in Chemistry and Metallurgy at School of Mines.
 C. B. Rearick, Assistant in Mechanic Arts.
 M. S. King, M. Acc'ts, Instructor in Commercial School.
 W. R. Gentry, L. B., Assistant in Modern Languages.
 G. L. Brown, S. B., Tutor in Mathematics.
 J. A. Sheaffer, Tutor in Mathematics.
 M. H. Lockwood, Tutor in Mineralogy and Physics.
 C. L. Hare, B. S., Assistant in Chemistry.
 N. C. Riggs, Tutor in Mathematics.
 F. B. Williams, S. B., Tutor in Mathematics.
 H. V. Blarcom, Assistant in Shop Work.
 I. Loeb, S. B., Tutor in History.

NORMAL SCHOOLS.

The Normal School movement in Missouri began as early as 1843, when President Lathrop, of the State University, in an able paper strongly urged upon the Legislature and Board of Curators the importance of establishing a Normal Department in that institution. In 1845, Governor John C. Edwards called the attention of the General Assembly to the importance of normal training as an element in a successful system of public instruction, and Governor Austin A. King, who succeeded Mr. Edwards in 1848, made similar

recommendations. In 1866, the State Teachers' Association in session at St. Louis, passed resolutions strongly favoring the founding of State Normal Schools.

The first definite movement toward the actual founding of Normal Schools in the State, was made by the City of St. Louis. In accordance with action previously taken by the Board of Public Schools, a City Normal School was opened October 28th, 1857. The institution was established expressly for the purpose of training female teachers for the district schools of the city, and has been continued down to the present with no material change in the original purpose.

In 1868, President Lathrop's eloquent appeal of twenty-five years before found expression in the establishing of a Normal Department in the State University. This action of the curators, contemplated not merely a chair of pedagogies with advanced lectures and discussions on the science of education, but an actual training of teachers for the common schools of the State. The great want in that direction doubtless guided the University authorities in their action. The intention is clearly shown by the organization of the department, which was adopted at the time. E. L. Ripley, A. M., was chosen Dean and Professor of Pedagogies; D. W. B. Kurtz, A. B., Assistant Professor in the Normal School; Mrs. C. A. Ripley, Principal of the Model School, and Miss Mary B. Read, Assistant.

It was not until 1870, that legislative action was taken, looking towards the establishment of State Normal Schools. In February of that year, the Twenty-fifth General Assembly, in response to a memorial from a convention of colored citizens, passed an act creating a Normal Department in Lincoln Institute, a private institution located at Jefferson City.

The Institute was founded soon after the close of the civil war. The 62d and 65th Missouri colored regiments, before they were disbanded, created a fund of nearly \$7,000 for the purpose of establishing a school for the higher education of colored youth in the State. Subsequently a Board of Trustees was organized and the school was established in 1866. This Board appointed agents to solicit money from benevolent persons, and in 1871 the present main building was erected. From 1870 up to 1879 the Institute received regular appropriations from the State for support of its Normal Department, but being at that time somewhat embarrassed by debts, the Legislature appropriated \$5,000 for their liquidation conditioned upon the transfer of the property to the State. This was promptly done and the Institute became a full-fledged State Normal School for the training of colored teachers. Since that time, the Legislature has established in connection with the school, a College and an Industrial Department. It has also made liberal appropriations for apparatus, additions to the library and for maintenance.

THE GENERAL LAW ESTABLISHING NORMAL SCHOOLS.

A few days after the passage of the act creating a Normal Department in Lincoln Institute, a general law establishing Normal Schools was passed. This act divided the State into two Normal School districts. The first included all the counties north of the Missouri river; and the second, all the counties lying south of the river except the county of St. Louis.

BOARD OF REGENTS.

The same act created a Board of Regents to be composed of the State Board of Education as then constituted, and four other citizens, two from each Normal School District, to be appointed by the Governor.

The Board of Regents thus constituted was empowered to locate the schools under the conditions named in the act; to appoint and dismiss teachers; to direct the course of instruction; to designate the text-books to be used; to direct what reports should be made to them; and, in short, to assume the entire direction of the affairs of the schools.

PLAN OF ESTABLISHING THE SCHOOLS.

The location of the schools was to be determined by competitive bids. The law provided that the Normal School in each district should be located in the county offering the greatest inducements by way of buildings and grounds, not less than \$25,000 in value. Any county or city in the district was authorized "to donate or subscribe to the Normal School of the district in which it was located, such sum of money as two-thirds of the qualified voters thereof should, at a regular or special election held therein, determine upon; and, to pay the same, might issue bonds running for not less than twenty years, and bearing interest not to exceed ten per cent."

The Board of Regents was authorized to receive the bids of the several localities contesting for the different schools, and to select from among them in each case the one considered the most favorable for the purpose intended. The Board was also authorized "to inspect buildings, if suitable ones were offered, and to assess their value, suggest plans for new buildings, or improvements on such as were offered." When completed in accordance with the law, the property was to be accepted by the Board of Regents and held in trust for Normal School purposes.

THE LOCATION OF THE SCHOOLS.

The passage of the law led to prompt action in both districts. After sharp and somewhat bitter contests, continued for several months, the Normal School of the First District was located at Kirksville, in Adair county, and that of the Second at Warrensburg, in Johnson county.

THE KIRKSVILLE SCHOOL.

In the contest for the location of the First District school, Livingston and Adair counties were the principal contestants. A private Normal School had been organized at Kirksville in 1873, and at the

time of the contest was in a very prosperous condition. This gave Adair county the advantage, and when the bids of the two counties were compared, it was decided that the offer of Adair county (the sum of \$100,000 and a campus of ten acres) was the best; and the school was accordingly located at Kirksville.

The property of the private Normal School was therefore transferred to the State, and the institution was opened as a State Normal School, January 2d, 1871.

At the close of its first year as a State School, it reported 321 students. In 1892, it reported an enrollment of 596 students in the Normal Department and 107 pupils in the Training School, making a total of 603. The whole number of graduates reported at that time, was as follows:

Elementary, or Two Years Course.....	686
Advanced, or Four Years Course.....	262

THE WARRENSBURG SCHOOL.

In the Second District, the principal competitors for the school were Pettis and Johnson counties. The Board of Regents at first decided that the Pettis county proposition was the best, and located the school at Sedalia; but owing to alleged tardiness on the part of the Pettis county authorities in complying with the terms of the contract, the question was reopened and the location changed to Warrensburg.

To secure the location of the school—

Johnson county voted in ten per cent bonds...	\$128,000
Warrensburg voted in ten per cent bonds.....	45,000
Making a total of.....	\$173,000

Citizens donated a campus of 16 acres, within six blocks of the Public Square.

Immediately after the re-location of the school, one of the public school buildings of the town was leased, and the school was opened for the admission of students May 10th, 1871. After a summer session of fourteen weeks, it closed for the year. Since the first year the annual sessions have been forty weeks each. During the fractional year above mentioned, there were enrolled 87 students; in 1892, the enrollment in the Normal Department was 874, and in the Training School 164, making a total enrollment of 1,038.

The number of graduates reported in 1892 was—

Elementary, or Two Years Course.....	877
Advanced, or Four Years Course.....	200

CAPE GIRARDEAU SCHOOL.

Owing to the difficulty in reaching Warrensburg from the eastern counties of the Second District, there soon arose a strong sentiment in favor of establishing a school in Southeast Missouri. Accordingly, the General Assembly, in 1873, formed a new district by dividing the Second. The line of division began at the northwest corner of Gasconade county and ran south by the western boundary of Gasconade, Crawford, Dent, Shannon and Oregon counties to the Arkansas line.

In locating the school for the new district (afterwards the Third) the plan that had been previously followed in the First and Second Districts was adopted.

The Board of Regents, after duly considering the various offers made by the competing localities, decided in favor of the town of Cape Girardeau, which had offered \$50,000 and the choice of a large campus (10 acres) to be selected from several eligible sites near the town.

In the case of the First and Second Districts, the Board of Regents, after determining the location of the schools, took possession of the funds and other property, and undertook to superintend the erection and equipment of buildings. As a result, neither buildings nor equipments were such as should have been obtained for the money donated to the State by the communities in which the schools were located. The Cape Girardeau Local Committee, profiting by the experience of Kirksville and Warrensburg, themselves superintended the erection of the buildings. The committee pushed the work with such vigor that in a short time the buildings were erected and equipped for school work, and turned over to the State authorities without debt.

The first session of the school was opened December 10th, 1873. In 1892, this school reported an attendance of 372 students. The whole number of graduates since the organization, as then reported, is:

Elementary, or Two Years Course.....	436
Advanced, or Four Years Course.....	116

CONCLUSION.

The founding of the Missouri State Normal Schools was the result of a compact between the State on the one hand, and the several communities in which the schools were located on the other. In consideration of the property donated to the State, each school was granted the right, through its Board of Regents, to present to the Auditor of State at the end of every six months, a claim for the sum of twenty-five hundred dollars (\$2,500), and the Auditor was authorized and required to draw his warrant on the State Treasurer in favor of the treasurer of the school for that sum. The money thus drawn was to be used only in payment of teachers' salaries. This sum was sufficient for the purpose in the early history of the schools, but as students increased in number and more teachers became necessary, it proved quite inadequate, and the amount has been increased from time to time by successive legislatures. The largest sum now appropriated to any one school is \$13,750 a year to the school at Warrensburg. This sum falls \$5,800 short of paying teachers' salaries. The deficiency is made up from tuition.

The State Normal Schools are required by law to admit no students, except such as pledge themselves to follow the business of teaching in the State, and there is good reason to believe that ninety per cent or more of those graduating redeem the pledge in good faith. In addition to this, large numbers of the undergraduates enter the common schools every year and do good work as teachers.

Something of the influence exerted by the Normal Schools may be estimated by a careful analysis of the following table:

SCHOOL.	Enrollment in 1892.*	Missouri Counties Represented in 1892.	Graduates in 1892.	Graduates Since the Organization.	
				Elementary.	Advanced.
Kirksville	596	48	47	685	262
Warrensburg.....	874	66	107	877	200
Cape Girardeau	273	31	43	436	116
Lincoln Institute..	100	43	7	89	66
Totals.....	1,843	188	204	2,087	644

*Training departments not included.

That the Normal Schools are popular with the masses of the people and are daily growing in favor is clearly shown by the number of students in attendance and the extent to which they are distributed over the State.

PUBLIC SCHOOLS PROPER.

Scope and Classification.—The public schools proper consist of country, village, town and city schools. Legally, these schools are divided into two classes: (1) Those with a board of three directors; (2) with a board of six directors. The former include all the country schools with one teacher, nearly all the villages, and a few towns that have not yet availed themselves of the six-director organization. The latter class includes all the schools in the cities and larger towns, and most of those in the smaller towns. In these two classes of schools is taught a course of study ranging all the way from the elements of the common branches, in the weakest country school, to a strong eight-year course in primary and grammar grades supplemented by a four-year high school course, in the cities and larger towns.

SCHOOL FUNDS.

Missouri's public school fund consists (1) of permanent funds, and (2) of funds not permanent (derived from local taxation). Permanent funds are (1) township; (2) county; (3) State, and (4) permanent district.

Township Fund.—In the organic act of Congress (1812) by which the Territory of Missouri was erected from that of Louisiana, and its temporary government organized, the following important provision occurs: "Religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall be encouraged and provided for from the public lands of the United States in said territory, in such manner as Congress may deem expedient." In pursuance of the design contained in the above provision, the act authorizing the people of the Territory of Missouri to form a constitution and State government contained the following: "Section numbered

sixteen in every township, and when such township has been sold or otherwise disposed of, other lands equivalent thereto and as contiguous as may be, shall be granted to the State for the use of the inhabitants of such township for the use of schools." This grant of land amounted to 1,208,000 acres—a munificent grant. Article VI. of Missouri's first constitution was as follows: "Schools and the means of education shall forever be encouraged in this State, and the General Assembly shall take measures to preserve from waste or damage such lands as have been, or shall hereafter be, granted by the United States for the use of schools within each township in this State, and shall apply the funds which may arise from such lands in strict conformity to the object of the grant. One school or more shall be established in each township as soon as practicable and necessary, where the poor shall be taught gratis." The sixteenth section in every township having been secured to the State for school purposes, it became the duty of the General Assembly to make provision for the preservation of this land and the use of the proceeds. An act approved 1820 authorized the county courts, through commissioners, to preserve the lands from waste, and to rent or lease them, "provided always that the said commissioners shall have no power to sell or alienate said lands or any part thereof." In 1822, the above act was amended by making it the duty of the county court to appoint two commissioners in each township to take charge of the school lands, and to erect school-houses in each township. It will be noted that no provision had been made for the sale of the sixteenth section. The General Assembly having been repeatedly urged by Governor Miller to authorize the sale of the township lands, passed an act, in 1831, providing for the sale of the sixteenth section, and the loan of the proceeds thereof. Thus was taken the momentous step that placed this magnificent land grant under the control of the respective county courts—a body not under bond for that purpose. The sixty years elapsing from this enactment have witnessed a most improvident management of this land grant. During that time, some county courts, through fraud—many through indiscretion and innocent mismanagement—have squandered this fund beyond measure. The lands were sold at grossly inadequate prices. The funds derived from the sale were loaned on insufficient security—sometimes to favorites. But from the wreck of this mismanagement, the township fund, increasing annually, now amounts to \$3,370,369.90. This fund was increased, the last year, the sum of \$100,783.64. But the reign of mismanagement is over. The law now provides that the county court shall loan the township funds on unencumbered real estate security of double the value of the loan, with personal security in addition thereto. The annual proceeds of this fund are distributed by the county court annually in August to the schools of the respective townships, in proportion to the enumeration (between the ages of six and twenty). His annual income for the last year amounted to \$23,082.59.

County Fund.—The chief source of the county school fund is the grant by the National Government, to the State of Missouri, of swamp and overflowed lands, amounting to about 4,000,000 acres. Under authority of an act of the General Assembly (1858 and 1859), these lands were patented to the respective counties, and, like the township lands, were placed under the control of the county courts. Here, again, we meet with gross mismanagement, and more or less fraud. Had this magnificent grant of land been properly managed, it would have made a school fund as enduring as time. In many counties the lands were sold for a few cents an acre, although the minimum price had been fixed at \$1.25 per acre. Like the township funds, these were loaned on insufficient security. In one county, \$182,748.54 in swamp land script was paid for a levee on the bank of the Mississippi. In another county, 150,000 acres of land were subscribed to a railroad. The county school fund is also increased annually by the net proceeds of fines, penalties, forfeitures and estrays. Notwithstanding the decades of waste and fraud, this fund has increased during the last year \$86,776.75, and now amounts to \$3,788,559.28. It is loaned under the direction of the county court on unencumbered real estate of double the value of the loan, with personal security in addition thereto. The annual proceeds of this fund, amounting, during the last year, to \$320,537.63, is distributed in August of each year to the respective districts of the county, in proportion to the pupils of school age (between the ages of six and twenty).

State Fund.—This fund had its origin with the act of Congress of 1820, authorizing the Territory of Missouri to form a constitution and State government preparatory to admission into the Union. This act provided, among other things: "All salt springs not exceeding twelve in number with six sections of land adjoining to each, shall be granted to said State for the use of said State." By act of the General Assembly of Missouri (1837), the donation of saline lands was made the nucleus of our present State school fund, at that time denominated the "Common School Fund." At the same time, Missouri's share of the surplus revenue of the United States was set apart to this fund. It was provided that the interest and dividends upon the funds arising from these two sources should be applied to the capital of the common school fund until the sum should aggregate \$500,000, after which, the income was to be appropriated for the payment of "teachers in common schools." From surplus revenue, Missouri received, in 1837, \$382,335. In 1838, the amount received from the saline fund was \$39,935. This State fund has been increased from time to time from the saline grant, from sale of State Tobacco warehouse, from executors' and administrators' funds, from internal improvement fund and premium on gold interest, from fines, forfeitures, estrays and sale of lands, from fees paid by notaries public, and from appropriations of moneys received from the United States for reimbursement of war

expenditures. This last is by far the largest receipt, amounting to \$1,500,000, and was received in 1867. Under the provisions of an act of Congress, approved April 17, 1866, the State of Missouri was reimbursed for large sums of money spent in enrolling, equipping and maintaining militia forces employed by the United States in suppressing the Rebellion. The amount thus expended by the State exceeded \$7,000,000, to raise which oppressive taxes were levied during the years 1863, 1864, 1865 and 1866. Another consideration for the appropriation by the General Assembly of \$1,500,000 was the fact that for the seven years ending 1867, the annual distribution of twenty-five per cent of the State revenue, for school purposes, had been withheld. From the sale of the State Tobacco Warehouse, the State school fund was increased in 1865, \$132,000. By transfers from the executors' and administrators' fund in 1875, this fund was increased about \$45,000. This fund now amounts to \$3,140,853, and is invested in Missouri State certificates of indebtedness, \$2,909,000 at six per cent and \$231,000 at five per cent. The annual proceeds (interest) from this fund is apportioned by the State Superintendent annually in July to the counties of the State, to be by these counties apportioned in August to the school districts of the respective counties in proportion to the enumeration of persons between the ages of six and twenty. The proceeds of this fund have been thus distributed since 1842, at which time the \$500,000 limitation (previously spoken of) had been passed.

Between 1853 and 1887, one-fourth of the State revenue (exclusive of the interest and sinking funds) was set apart for annual distribution by the State Superintendent. Since 1887, one-third of this revenue has been set apart (Constitution of 1875 provides for one-fourth).

By act of the General Assembly in 1837, the Bank of the State of Missouri was chartered, and all moneys belonging to the school funds were invested by the Governor in the stock of this bank. This proved to be a very unfortunate investment. We find the State Superintendents in their annual reports complaining again and again at the uncertainty of the dividends from the school funds invested in this bank. Sometimes the dividends were tardily paid; sometimes not at all—notably in 1843 and 1844. In 1866, the stock held by the State in the Bank of the State of Missouri was sold to Capt. Jas. B. Eads. Payment therefor was made by him in State of Missouri bonds. In 1872, in lieu of the bonds and accumulated interest, a certificate of indebtedness of \$900,000 was issued. In the meantime, in 1867, the \$1,500,000 reimbursement for war expenditures was invested in United States 6% bonds. In 1875, the United States bonds were changed to Missouri 6% bonds. In 1881, an act was passed providing for the issue of a consolidated certificate of indebtedness in lieu of the \$2,009,000 invested in Missouri 6% bonds and the \$900,000 invested in Missouri 6% certificates of indebtedness. A certificate of indebtedness is far

preferable to an investment of the school fund in either United States or State of Missouri bonds. With the maturity of bonds and their payment, the fund commissioners continually find themselves in possession of a school fund for which they must seek investment.

Permanent District Fund.—Permanent district public school funds are such as have been secured to a district by grant, gift, devise or special legislation. These funds are held in trust for the respective districts, only the interest being used annually. This fund has increased during the year ending June 30, 1892, \$34,382.94, and now amounts to \$59,406.92. The grand total of State, county, township and permanent district funds now amounts to \$11,551,147.33—the largest available permanent school fund of any State in the Union. The last annual apportionment by the State Superintendent was \$900,250.80, and was apportioned to 919,014 persons of school age.

Local Funds.—The school funds so far discussed are permanent—subject to increase, but not to decrease—the principal remaining inviolate, only the proceeds being apportioned for payment of teachers' wages. It now becomes necessary to briefly discuss school funds not permanent—those arising from local taxation. It was, no doubt, the design of the General Government, in its munificent grants of land for school purposes, that a system of free education should be maintained without resort to local taxation; but the improvident management of these lands thwarted this benevolent design. Prior to the enactment of the school law of 1865, funds for payment of teachers were provided from the income of State, county, and township funds, supplemented by tuition collected by a school officer. During all these years prior to 1865, schoolhouses were built from funds arising both from local taxation and from private enterprise. But with the enactment of the school law of 1865, the pendulum swung to the opposite extreme, permitting the township boards to levy two per cent for school purposes without submitting the question to the qualified voters. There was no limit to the amount that this board could levy for building purposes. The reaction came with the enactment of the school law of 1874, and the constitution of 1875. These threw the most stringent safeguards about taxation, wholly depriving boards of the authority to levy taxes for building purposes, and limiting their authority to levy for school purposes to forty cents on the \$100 valuation. It is provided, however (Section 8005, R. S. of 1889), that this levy (forty cents) for school purposes may be increased, not to exceed sixty-five cents in country districts, and one hundred cents in districts formed of cities, towns and villages, upon such increase being ordered by a majority of the taxpayers of the districts voting at an annual or special meeting called for the purpose. It is also provided (Section 8006, R. S. of 1889) that a levy for building purposes may be made, not to exceed sixty-five cents in country districts, and one hundred cents in city, town, and village districts, upon being authorized by two-thirds of the

qualified voters of the district, voting at an annual or special meeting called for that purpose. The board is also empowered (Section 7981, R. S. of 1889) to borrow money for the erection of schoolhouses, when authorized by two-thirds of the votes cast. The following restrictions (Section 7982, R. S. of 1889) are placed upon the power to vote bonds: The loan not to be contracted for a longer period than twenty years, and the entire amount of said loan, including present indebtedness, at any time not to exceed five per cent of the value of the taxable property of the district. For similar constitutional provisions concerning taxation, see Article X., Sections 11 and 12 of the Constitution in 1875.

Under these limitations, quite ample funds for building and school purposes are being provided. Although the resort to local taxation for school purposes was long delayed, it has now become the chief source of school revenue. Of the \$6,117,815.63 received for public education during the year ending June 30, 1892, the following amounts came from sources other than local taxation:

Interest on State school fund (plus one-fourth of the revenue).....	\$876,719 17
Interest on county fund	320,537 63
Interest on township fund.....	233,682 59

This leaves more than four and a half millions to come from local taxation.

TRAINING AND LICENSING OF TEACHERS.

For training of teachers in Normal Schools see discussion of these schools. As an agency for training teachers, the Teachers' Institute is second only to the Normal School. We find State Superintendent after State Superintendent recommending voluntary institutes. Between 1853 and 1865 these voluntary institutes seem to have increased in numbers and efficiency, always lasting, however, for but a few days. The school law of 1865 established the first system of Teachers' Institutes, making it the duty of the County Superintendent to establish, and the teachers to attend, these institutes. But, with the enactment of the school law of 1874, this institute system was repealed, and the State returned to the voluntary plan. These voluntary institutes, however, slowly improved, being held in more than one-half the counties of the State in 1891, and many of them lasting two weeks—some of them three and four weeks. But during all this time, no law provided for an institute fund. The fund for the payment of institute instructors was derived from the voluntary contributions of the teachers in attendance. In 1891, the present institute law was enacted. Before entering into a discussion of this law, the history of licensing teachers will be briefly noticed.

Prior to 1853, the local township boards, or rather a sub-board, composed of members of the township board, not only employed teachers but examined them, and visited and inspected schools as they were inspected. From 1853 to 1855, a School Commissioner, chosen by the qualified voters of the

county, examined and licensed teachers; from 1865 to 1874, a County Superintendent, and from 1874 to 1891, a County Commissioner. This brings us to the consideration of the present institute law, which combines in itself the two functions of training and licensing teachers.

A small per cent of Missouri's teachers are trained and licensed by the State Normal Schools and Normal Department of the State University. Those who complete the elementary course of two years, are granted a certificate, authorizing the holder to teach in any district of the State for a period of two years; those completing the advanced course of four years, are granted a Normal diploma, authorizing the holder to teach in any district of the State during life, subject to revocation for cause.

INSTITUTE LAW.

Up to two years ago, nine-tenths of the teachers of the State were licensed by county commissioners elected by qualified voters of the respective counties, and holding their offices for two years. As no special qualification was required of the commissioners, and they were subject to local and political pressure, much of this work of examining and licensing teachers was poorly done. To improve on this method of licensing teachers, and to give the great body of teachers with poor educational advantages an opportunity for a few weeks' professional instruction in institutes, the Thirty-sixth General Assembly, in 1891, enacted the Institute Law. This Institute Law as originally enacted, provided (1) for a State Training School in charge of ten able educators, appointed by the State Board of Education to train and license institute conductors and instructors; and (2) for the holding, during June, July or August of each year, a four weeks' institute in each of the one hundred and fourteen counties of the State. Two sessions of the State Training School were held, with an average attendance of 300, and with most gratifying results. In this Training School, dealing with the common branches only and emphasizing management and methods, were to be forged the educational ideals that, through the County Institutes, were to reach practically all the school-rooms of the State. The County Institutes are in charge of a conductor or superintendent, and one or more instructors. The institute fund for the payment of conductors and instructors is derived from the payment, by each teacher, to the county treasurer annually, of the sum of three dollars. No teacher is permitted to attend an institute or be examined for a certificate who has not paid this fee. An Institute Board of Instructors and Examiners (consisting of the county commissioner, the conductor and instructors of the institute), at the close of the institute, grants three grades of certificates, valid for one, two, and three years, respectively, in the county in which issued. Between two annual institutes, the county commissioner may examine any applicant, who for good and sufficient reasons did not attend the examination of the County Institute Board of Examiners, upon the presentation,

by the applicant of a receipt, showing that the three-dollar institute fee has been paid the county treasurer.

The two strongest features of the Missouri Institute Law are: (1) the State Training School, insuring competent and enthusiastic institute conductors and instructors; and (2) the making of the County Institute Board of Instructors, also the Examining and Licensing Board, thus taking the licensing of the teachers away from the county commissioner as an individual, and placing it in the hands of the ablest town principals and superintendents, associated with the county commissioner in the capacity of Boards of Instructors and Examiners. So strong and radical was the Institute Law, that its enemies, at the end of the first two years of its existence, vigorously battled for its repeal at the session of the Thirty-seventh General Assembly (1893) just closed. In order to disarm this opposition, the friends of the law consented to an amended institute bill, abolishing the Training School, and permitting the institute to vote the length of term—not less than two nor more than four weeks; and making other slight amendments, perfecting the law. This amended bill became a law.

The State Superintendent is also authorized to examine applicants and grant State certificates, valid for life.

COURSE OF STUDY.

Missouri has never established, by law, either a common school course of study or a high school course. A legal course of study for County Institutes has been established, dealing with the common branches only, and a voluntary course of study for District Institutes, and another for District Schools have been printed, by private enterprise, and used to a considerable extent. The course of study in each school district is left to the board of that district.

SCHOOL ORGANIZATION.

By act of 1821, authority was given to establish a school in each congressional township, thus inaugurating the township system. Later, the township board was authorized to divide the township into one or more school districts, the township board being composed of the clerks of the sub-districts. With some modification, from time to time, this organization continued till 1874, at which time the township organization was swept away, and the sub-districts declared independent districts, each with an independent board of directors—three in country districts and six in city, town and village districts—holding their offices for a term of three years, one-third elected annually. Many of our best educators feel that school township organization is far preferable to the independent district organization. The township organization, from which our system has emerged, was a sort of pseudo township organization—an unfortunate mixture of the district and township systems. The district boundary lines may be changed by a majority vote at the annual meeting, with an appeal to the county commissioner in case the proposition fails to carry in any district or part

of a district affected. Disorganized territory may be formed into a new district or attached to an adjoining district. Board of Directors has power "to make all needful rules and regulations for the organization, grading and government in their school district;" to employ teachers; to purchase material and apparatus, and to care for the property; also to suspend or expel pupils for conduct tending to the demoralization of the school, and to admit non-resident pupils and fix the tuition fee for the same.

STATE SUPERVISION.

From 1842 to 1854, the Secretary of State was ex-officio State Superintendent. During these years, this position was filled by James L. Minor, Falkland H. Martin and Ephraim B. Ewing. From 1854 to 1861, the position of Superintendent of Common Schools was filled by John W. Henry, Edwin C. Davis and Wm. B. Starke. During the war (1862, 1863 and 1864), superintendency of *common schools* was abolished, and Mordecai Oliver, Secretary of State, served as ex-officio superintendent. At the close of the war (1866), superintendency of *public schools* was created. From that time to the present (1893), the following have served as State Superintendent of Public Schools: Thos. A. Parker, Ira Divoll, John Monteith, R. D. Shannon, W. E. Coleman and L. E. Wolfe.

The State Superintendent is elected every four years by the qualified voters of the State, and resides at the seat of government. The law makes it his duty to exercise supervision over the educational funds and interests of the State; to annually distribute the State school moneys; to print and annually ship to the county commissioners the necessary school blanks for distribution to school officers; to require copies of records and other information relating to schools, from city, town and county officers; to print and distribute the school law with instructions. It is also made his duty to examine teachers and grant State certificates; to make an annual report to the General Assembly, and when not in session any one year, to the Governor; to visit the different parts of the State, conferring with boards of education and other school officers, counseling teachers, visiting schools, delivering lectures, etc. All moneys reasonably expended by him in the execution of his duties, as prescribed by this section shall, upon proof, be allowed him by the Auditor, and paid out of the State Treasury. He is allowed, annually, \$500 for traveling expenses.

COUNTY SUPERVISION.

Prior to 1853, there was a sort of inspection, under the direction of the township board; from 1853 to 1865, a visitation, more or less unsatisfactory, by the county commissioner who was paid two dollars per day while performing his duties; from 1865 to 1874 a somewhat more efficient visitation by the county superintendent, limited to sixty days in each year, "unless otherwise ordered by the

county court, and to receive for his services such per diem as the county court may deem just and proper for the time actually employed in the discharge of his duty as superintendent." During the nearly ten years following, many strong superintendents graced the office, but unfortunately, a great number of political tricksters, broken-down lawyers and ministers. In 1874, this system of supervision fell under the accumulated weight of its inefficiency and unpopularity. The successor to the Superintendent—the County Commissioner—is restricted to a few duties—the examination of teachers and the granting of certificates, the revocation of certificates, the settling of district boundary contests on appeal, and the making out of an annual report to the State Superintendent. He receives, for making out his report, between twenty and forty dollars, depending upon the population of the county. Prior to the adoption of the present institute law, he received one dollar and fifty cents for each certificate granted or teacher examined. Under the institute law, he receives compensation as conductor or instructor in his institute, and a fee of one dollar and fifty cents for each teacher examined between institutes. For work in institutes, he may receive as conductor thirty-seven dollars and fifty cents per week; as instructor, twenty-five dollars per week.

Our best educators believe Missouri is soon to have an efficient system of supervision—a system free from many of the defects and objectionable features of other States. With the wonderful impetus given to education under the institute law, the times seem ripe for such a system. May it not be long delayed.

TEXT-BOOKS.

Up to 1875, the choice of text-books was left to each school board. In 1875, a law was passed authorizing a convention of the presidents of all the school boards of each county to adopt text-books to be used for five years. Two adoptions were made under this law, which was repealed in 1885. In a large per cent of cases the county adoption was not enforced, there being no penalty for failing to conform to the adopted books. In 1891, the present text-book law was enacted. This law made it the duty of the Governor to appoint four persons, who, together with the State Superintendent, constituted the State School-book Commission. The law made it the duty of the School-book Commission to advertise for the lowest and best bids for furnishing text-books in the common branches for use in the public schools of the State for a period of five years, and imposed penalties upon school boards for failure to use the adopted books after September 1, 1892; provided for the establishment of depositories in cities of 10,000 inhabitants or over, where the adopted books could be had at contract prices; provided for the sale of the adopted books by retail dealers at ten per cent above the contract prices. The Commission contracted for the following books with corresponding prices:

Text-Books Contracted for by the Missouri School-Book Commission, for a period of five years, from Sept. 1, 1891, to Sept. 1, 1896.

	Contract price.	Retail price.	Exchange price.	Mailing price.
American Book Co.—				
Barnes' Brief History, in cloth.....	\$0 80	\$0 88	\$0 40	\$1 00
Charts, McGuffey } On roller.....	2 00	2 20		
} With stand.....	4 00	4 40		
McGuffey's Revised Speller, in boards	14	16	7	17
Steele's Hygienic Physiology, in cloth	80	88	40	1 00
Townsend's Civil Government, shorter Course, in cloth.....	58	64	29	72
Ray's New Elementary Arithmetic, in boards.....	28	31	14	35
Ray's Practical Arithmetic, in boards	40	44	20	50
“ Primary Arithmetic, in boards..	12	14	6	15
E. H. Butler & Co.—				
Butler's Elementary Geography, in cloth.....	44	49	22	54
Butler's Complete Geography, in cloth	96	1 06	48	1 20
D. C. Heath & Co.—				
Hyde's Practical Lessons, I., in boards	20	22	10	26
“ “ “ “ II., in boards	35	39	17	43
Leach, Shewell & Sanborn—				
Brands' Good Health for Children, in boards.....	18	20	9	20
Brands' Lessons on the Human body, in cloth.....	36	40	18	45
Geo. Sherwood & Co.—	Per dz.	Each.		Per dz.
Analytical Copy-books, Elementary...	50	5		60
	Per dz.	Each.		Per dz.
Analytical Copy-Books.....	65	6		79
Taintor Bros. & Co.—				
New Franklin Primer and First Reader (combined), in boards.....	12	14	7	15
New Franklin Second Reader, in boards.....	18	20	10	22
New Franklin Third Reader, in boards	25	28	15	30
“ Fourth Reader, in boards	36	40	20	42
“ Fifth Reader, in cloth....	45	50	27	55

GENERAL VIEW.

Omitting any account of numerous special acts, Missouri has had, during her existence as a State, six school acts. The first general act upon the subject was passed in 1824; the second act in 1835; the third in 1839—long and minute in details; the fourth in 1853; the fifth in 1865; the sixth in 1874. In 1891 were passed the two important and special acts—the Institute Law and the Text Book Law. Looking back over our educational history, we find one steady forward march, from the time when Missouri, in forming her constitution, met the liberal land grant of the General Government by providing: “One school or more shall be established in each township as soon as practicable and necessary, where the poor shall be taught gratis,” to the laying of the great educational cornerstone in the constitution of 1865, as follows: “A general diffusion of knowledge and intelligence being essential to the

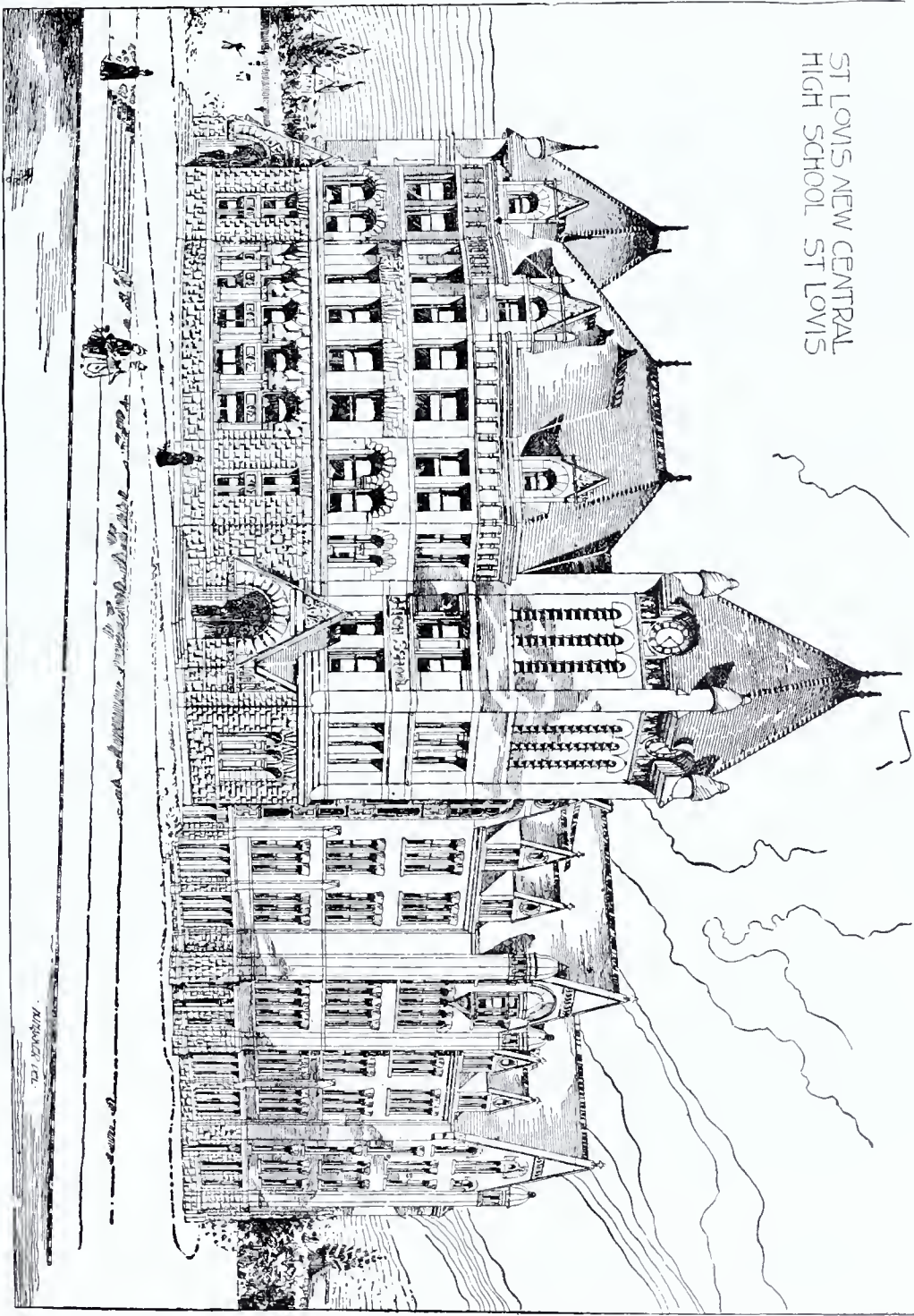
preservation of the rights and liberties of the people, the General Assembly shall establish and maintain free public schools for the gratuitous instruction of all persons in this State between the ages of five and twenty-one years.” The provision in the constitution of 1865 was repeated in the constitution of 1875, substituting six and twenty years, instead of five and twenty-one years. The expression in the constitution of 1820, “where the poor shall be taught gratis,” shows that the idea of free education at public expense had not yet secured recognition. But this recognition is given unreservedly in the section just quoted from the constitutions of 1865 and 1875. “The General Assembly shall establish and maintain *free public schools* for the gratuitous instruction of all persons.” Neither these sections nor the laws enacted under them exclude negroes from their liberal provisions. No State deals more liberally, educationally, with her negroes than Missouri, making it the duty of the Board of Directors to establish a separate free school for them whenever there are fifteen enumerated in the district. When less than fifteen, the board may establish such school, or the colored pupils may attend gratis any colored school in the county. Missouri maintains Lincoln Institute for the training of colored teachers, and by educating the white and negro children separately, secures to the negro race the teaching of their own schools.

While the pendulum seemed to swing back in 1874, we really found a firm and enduring foundation. In the enactment of 1874, and under the constitution of 1875, Missouri sunk her educational caisson through the shifting sands, and planted it upon the enduring rock of public opinion.

Though at times her advance has seemed to be less rapid than some would wish, it has ever been forward with that resistless momentum that comes from the accumulated force of public approval. The system has seen many dark days, and has come up through much tribulation. But much of its past has been glorious; its future will be more glorious. With an annual expenditure of \$6,091,835, three State Normal Schools for whites, a Normal Department in the State University, and Lincoln Institute for the training of colored teachers; with, in many respects, the strongest institute law in any State, with a State University having recently received an endowment of more than half a million, and an appropriation of one-fourth of a million for the erection of a main building, Missouri's educational future is assured.



ST LOUIS NEW CENTRAL
HIGH SCHOOL ST LOUIS



OPENING OF THE STATE BUILDING.

[From the Kansas City Times, May 2.]

THE crush and crowd about the Administration Building was over at 3 o'clock. Cleveland had opened the fair, the pickpockets had got in their fine Italian work, the ladies who fainted had recalled their breath and the roses again to their cheeks and the crowd had very generally dispersed. This gave the patriotic sons and daughters of old Missouri an opportunity to repair to the Missouri State Building and attend its formal opening.

At least 2,000 Missourians came over to the dedication. There was not room enough for them in the spacious main hall, and they overflowed down stairs, and up stairs, for that matter, and hundreds looked in and listened from the third floor galleries, which overhang the hall. It may be said, in truth, that 15,000 participated in the dedication ceremonies. The Hon. Nathan Frank, vice-president of the Missouri World's Fair Commission, presided, and promptly at 3 P. M. called the assembly to order. Kansas City provided the first, and, with no discredit to the others, it is safe to say the best, part of the programme. Nothing that appeared to the eye and ear of the 1,500 people who hung to the railings and sat on the camp-chairs that Charlie Green and Hugh McGowan provided, struck them as favorably and as forcibly as the Mandolin Club from Kansas City.

THE GIRLS MOST BEWITCHING.

In their uniforms the girls who twinged and twanged on their stringed instruments were simply bewitching. They wore little turbans and cute jackets that reminded one of the things that he might see in the Midway Plaisance on the Arabs. But the girls, and the music too, were sweeter than anything that ever stole out of Arabia. The day's programme was begun by the young women. Miss Hale, the daughter of Kansas City's fire chief, was bewitching on one end of the line; Miss Mary Slater was equally attractive on the other extreme of the row. The others were just as pretty and as much admired by the hundreds who came, saw, and were conquered by Missouri.

"Then you don't wear long hair and leather leggings and shoot on sight down in Missouri?" an astonished Englishman asked, after Governor Stone had finished his masterly oration of the day. The Britisher at first firmly refused to believe that the mandolin girls came from Missouri and from the

wild western half of it at that. After the Mandolin Club came St. Louis Quintette Club. Their recall, prompt, vigorous and applausive, told better the story of their worth and their success than can be done by pen and ink. Prayer was offered by Rev. Dr. Niccolls of the Second Presbyterian Church, of St. Louis. It was deep, fervent and impressive. As chairman of the Committee on Building and Site, of the Missouri World's Fair Commission, the Hon. Nathan Frank then delivered an address turning over the building to the State of Missouri. Mr. Frank's speech was a specimen of clear and elegant diction and was listened to with interest. Said Mr. Frank:

"LADIES AND GENTLEMEN: We have assembled to-day for the purpose of formally assigning this building to exposition purposes; on behalf of the Board of World's Fair Managers of Missouri, I bid you, one and all, a Missouri welcome. This phrase comprehends everything which the language of warm hospitality can express.

"When the Congress of the United States provided for celebrating the 400th anniversary of the discovery of America by an exposition of the arts, industries, manufactures and the product of soil, mine and sea in this great city, the marvel of the continents, it was not within the comprehension of any mind in that illustrious body that such an exhibition as our eyes behold would be presented. The metropolis of our own State was a competitor for the site for the celebration. Experienced as we are in expositions and fairs, we can turn the critic's eye upon this display and truthfully say, 'We expected much—yes, very much—and we are not disappointed.'

MISSOURI EARLY IN LINE.

"Of the States in the Union which first advanced to co-operate in bringing about this result was our own State; because we were anxious to lend our support to our sister State to commemorate, in a fitting manner, the greatest event that history records; to pay our homage to the great Italian navigator, and because we felt that an exhibition of the resources of the State of Missouri would be the measure of that perfection which the highest state of civilization could display. A liberal appropriation was made by our State through the efforts of a gentleman whose name and fame will live as long as the annals of the State will live, the then Governor of Missouri, the Hon. David R. Francis. The Board of Managers

selected under the legislation creating it has been untiring in its efforts to faithfully execute the trust confided to it, and to-day we find within the borders of this great exposition Missouri's varied industries in every department, the only State whose products are sufficiently varied and commercially developed to be under the panoplies in the many distinct departments of this fair.

"The Board was so constituted as to be a Board of Equalization, and carrying out the purpose of its creation, it has so acted in the apportionment of the fund appropriated by the General Assembly as to equitably represent the industries of the State as well as different sections of the State. While the American character and its inventive genius knows no latitude or longitude, still that character, as found in the Mississippi valley, centered in our great State, is in many respects different from that found on either of the coasts that form the boundaries of this republic. To give this character and the varied resources of the State prominence at the World's Fair has been the aim of this Board. This fair is international in character, and will exhibit to the foreigners not only what we are engaged in doing toward the betterment of mankind, but will exhibit to them our great and growing country, a government worthy of the love and respect of its happy people; a land magnificent in its extent, developed by enterprise and labor. Here will be taught the greatest object lesson of the age; it will be the greatest educator of the century.

"If you will go with me on a tour of cursory inspection of the labor undertaken and the result accomplished for Missouri by the Board of World's Fair Managers, aided by the industrious, untiring and capable Executive Commissioner, seconded by the various departments of our State Government, you will find in the Ethnological Building what is of absorbing interest to the student of the early history of the Mississippi valley and the State of Missouri; the archaeological display, objects of historic interest and portraits of persons conspicuously connected with the early development of that section. You will find in the Forestry Building the wilds of nature turned to usefulness, a memorial to the lumbermen of the State, exhibited in a manner to win your admiration. When you reach the building reared to horticulture you will view the products of these erstwhile wild lands, unexcelled in quantity, quality, size and flavor anywhere within the territorial borders of our fair country. Passing to agriculture, here you will see the beautiful plateaus, magnificent bluff ranges along our rivers, the great rolling prairies and the broad and fertile lands of wonderful productiveness, presenting to your view the great harvest of golden grain which year after year rewards the tillers of our soil.

MISSOURI'S MINERAL WEALTH.

"In the Mines and Mining structure we uncover to the world the hidden treasures of our mineral wealth, displaying great varieties of all of which we

have an inexhaustible supply. The food fishes of our pellucid streams, the birds of ornament and usefulness, will be found in their appropriate places. The product of the dairy will interest you. I cannot dwell, for lack of time, on the inventive skill of our home manufacturers or the exhibits of their thrift and industry, nor can I do justice to the live stock exhibition, for which we have provided an installation when that branch of the fair opens in August, simply assuring you we will continue in future to maintain the rank we have held for years past in that branch of industry. What Missouri has done for the education of her youth her magnificent system of free schools and universities has for years given convincing proof. Let the visitor now judge for himself. Woman's domain in the development of this wonderful era is portrayed more especially in the Woman's Building. Our labors have been lightened by the great popular interest everywhere manifested, and the help so cheerfully given us by our people.

"The people of our State are entitled to their full share of the good and the glory which will result to the world, to the country and to Missouri from the holding of this exposition. This building, following in the course suggested by the exposition authorities, has been erected like every other State Building, as a place of entertainment, a retreat and a bureau of information for people desiring to know what the State is and what it exhibits at the exposition, a place for rest and comfort for all who may come. It was designed by Missouri architects competing with Missouri architects, and upon the award, I am glad to say, no word of criticism has been heard. It was built of Missouri structural material, from the timbers which support it to the tin which covers it, and the glass through which the light penetrates. Its furnishings and interior decorations will come from Missouri, toward all of which contributions have been freely made and stand as a tribute to the liberality of our people in their prompt response to the call of the managers. Your eye falls on nothing which is not from the State, which is an empire in itself. Great and grand Missouri! a State of matchless resources developed and undeveloped, natural and manufactured; peopled by industrious, liberal-minded and hospitable persons with a climate suited to all tastes and occupations; a home for all who wish to breathe the spirit of a purer air.

"And now, Governor Stone, it is my pleasure, as chairman of the Committee on Building and Sites, to formally assign to you this building for the purposes for which it was constructed under the provisions of law."

After Mr. Frank had finished, the Mandolin Club was again called on, and responded even more deliciously than at first. Governor Stone then came forward, and as the chief representative of the State, formally replied to Mr. Frank. His remarks were graceful, pure, flowery, and added another leaf to the Governor's laurels as an orator.

GOVERNOR STONE'S SPEECH.

Governor Stone addressed the audience as follows :

"Time is one of the mysteries. It is without a beginning and without an end. In the immeasurable sweep of the centuries, 400 years are like unto a microscopic atom, compared to the boundless universe. Indeed they represent but a brief span in the path of human history. If the history of the world should be divided into periods of 400 years, and a volume be written for each, the fifteenth and last would begin with the discovery of the Western hemisphere. Previous to that, we have no record of events which transpired on this hemisphere, beyond the conjectural story unfolded by the archaeologists and the oft improbable traditions of the savage. The mighty events that had before come up out of the centuries as they dawned and set on India and Egypt, Greece and Rome, Asia and Africa had all been chronicled. Abraham, Isaac and Jacob had communed with God. The children of Israel had come with Moses and Aaron out of the land of bondage. The Decalogue had been written on Sinai. The Temple of Solomon had been lifted in shining splendor at Jerusalem. The Sphinx and the pyramidal tombs of the Ptolemies, still reckoned among the most marvelous of human achievements, had been reared on the banks of the Nile.

"Marathon and the rugged hills of Thermopylæ had been shaken by the martial tread of contending armies. Alexander had flaunted his victorious banners on all the capitals of the world, and Demosthenes had swayed the multitudes and directed the policies of States by the overmastering force of his majestic eloquence. The skill and enterprise of Athens and Rome had brought forth the Acropolis and Pantheon, the Mausoleum and the Amphitheater and other creations scarcely less wonderful, of the structural art; Hannibal had led his armies across the Alps to encounter accumulating misfortune until the returning wave swept up against the wall of Carthage and destroyed his beloved city. The veteran and invincible forces of Cæsar had borne their conquering eagles into every land and made Rome mistress of the world. The star of Bethlehem had risen and the pathetic tragedies of Gethsemane and Calvary had been enacted. Attila the Scourge of God, and his barbarous hordes had poured out of their northern wilds upon Italy, and the dark ages had swept like a pall across the warring sun of civilization. William the Conqueror had landed Normans in Britian and wore upon his brow the Saxon diadem. The rise and fall of empires, philosophies and systems, the history of men and nations for nearly 6,000 years had been chiseled on stone or written in books long before the actors in that mighty chain of events dreamed of a new world away toward the setting sun.

COLUMBUS COMES ON THE SCENE.

"The fleets of Athens, Carthage and Syracuse had covered the Euxine and Mediterranean, and those of Spain, Great Britain, France and Holland had spread

their white sails above the blue Atlantic for centuries, but not a mariner among them all dreamed of this fair hemisphere, until Columbus, only 400 years ago, with splendid courage and matchless genius, forced his way out through the terrifying mysteries of the sea and unfurled the banner of his sovereigns before the wondering eyes of the savage and untutored natives of the virgin shores of San Salvador.

"Then began a new era, and the most marvelous one in all the history of mankind. The English, French, German and Spanish, the Dutch, the white races of Europe which have always been, as they are to-day, the dominant people of the earth, poured into the new world, some to North, some to Central and some to South America. New States, new nations were created. New experiments in human government were undertaken, new conditions and a new civilization were brought into existence. This development, this enterprise, this experimentation are all best typified and find their best exemplars here in North America. The United States are the best exponents of western achievement and this new civilization. Here has arisen the greatest popular government, the mightiest republic of ancient or modern times. Forty-four sovereign States are combined into one indissoluble Union. Within their vast areas, continental in extent, are 65,000,000 of freemen. The republic is perhaps the most powerful nation in the world; it is the richest in the world; it stands first in the quality and value of its agricultural, mechanical and mineral products. Nowhere on the face of the earth have men and women attained a higher standard of social, intellectual and moral culture, and now, 400 years after Columbus discovered this continent and 100 years after the republic was born, all the nations of the earth are assembling here at this great city built midway between the oceans, on land which, within the memory of living men, was the camping-ground of savage brutes; by the clear water of yonder far-spreading lake, whose laughing waves fifty years ago carried naught but the lonely canoe. Now come all nations to celebrate the quadrennial of this great achievement of Columbus, to honor his name and memory by interesting comparisons of their resources and handiwork, thus exemplifying the progress each has made in art, science and literature; in all things that mark the world's advancement.

A DUAL PART TO PLAY.

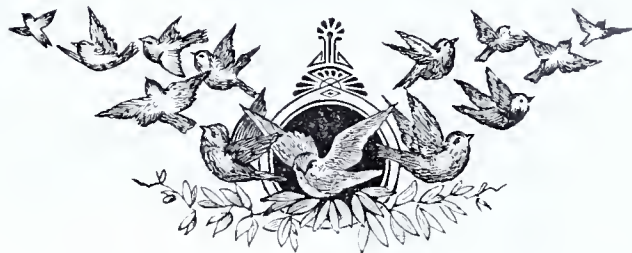
"In the rivalries of this exposition the States of the American Union have a dual part to play. Their exhibits, combined, represent the republic as one display. Great Britain, Germany and other countries contend, not against Missouri and Pennsylvania alone, but against all the States as one. But there is likewise a rivalry between the States themselves. These States, under our form of government are not provinces, they are sovereignties. They combine to rival other nations, they separate in generous rivalry of each other. In this latter aspect, Missouri must stand in the front rank. In area she is one of the

largest, in population she is fifth in forty-four, and her supremacy among the States west of the Mississippi is undisputed. Her metropolis is also fifth among the cities of the Union. Her climate is genial, healthful and invigorating. Her soil is unsurpassed for its fertility, its power of recuperation, the variety and wealth of its production. She is unexcelled in the opulence of her mines, ranking first in the quantity and value of her minerals useful in industrial arts. Her supply of coal, excellent in quality and most fortunately distributed, is merchantable. Her areas of forest land are vast and covered by a variety of superior commercial lumber. Her onyx and building stones are capable of the highest degree of polish, are large in quantity and happily located in the different sections. Her fire-clays, of the best character, fit for manufacturing brick, tiling, potters' ware and the like, are scattered in large deposits throughout the State. She is one of the very first of the great live stock States, and Kansas City, the crown jewel of the Missouri valley, ranks second in the live stock cities of the Union. In manufactures she is forging her way to the front, and because of almost unrivaled superiority of her water advantages and of her coal, metal, grain and forestry supplies, will soon outstrip competition in the productive and the manufacturing arts.

"Nature has been most prodigal of gifts to Missouri. She was made great without the aid of man. It would seem that God has created and designed her for the station which she fills as the central star in the galaxy of the Union. But the sons and daughters of Missouri love her and are proud of her. Within her borders dwell 3,000,000 of typical American citizens. They have come from all the States in the Union, and from nearly every European country. They represent the best aspects of our civilization; all the churches, political parties, and all phases of

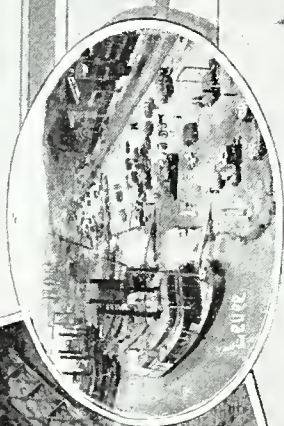
faith or policy which are at all potential in their influence on American life are nowhere better represented than in Missouri. But whether Catholic or Protestant, Jew or Gentile, Missourians love Missouri and unite in a patriotic desire to lift her standard high and advance it furthest along the pathway of national progress. Union is symbolized in our coat of arms; the shield bears the sentiment '*Salus populi suprema lex esto*'—'the safety of the people is the supreme law;' civil and religious liberty, the education of youth, the maintenance of order, the protection of private rights, the exemption of our people from unnecessary public burdens, the encouragement of useful and honest enterprises, whether industrial, artistic or literary. These are the things that most interest Missourians, and out of these they will build a temple of fame in lustrous and unrivaled beauty. Already she possesses the greatest available school fund of any State in the Union, and her colleges and schools are among the first of the land. Already we are practically relieved of public debt and her few remaining bonds are almost as valuable as the securities of the general government. Her credit gives assurance of the high confidence the world has in her people. The burden of State taxation is reduced to a minimum, the expenses of the State Government being met by a tax of 15 cents on the \$100. We are in all things among the very first of the States in the achievements of our people and yet we have scarcely begun our march of progress. We are yet at the initial point of that marvelous development that the fast coming years are unfolding."

Mayor Cyrus P. Walbridge, of St. Louis, also spoke, taking the place of Rev. Mr. Holland, who was unable to attend on account of sickness. The whole service concluded with music by both the Mandolin and Quintette Clubs.

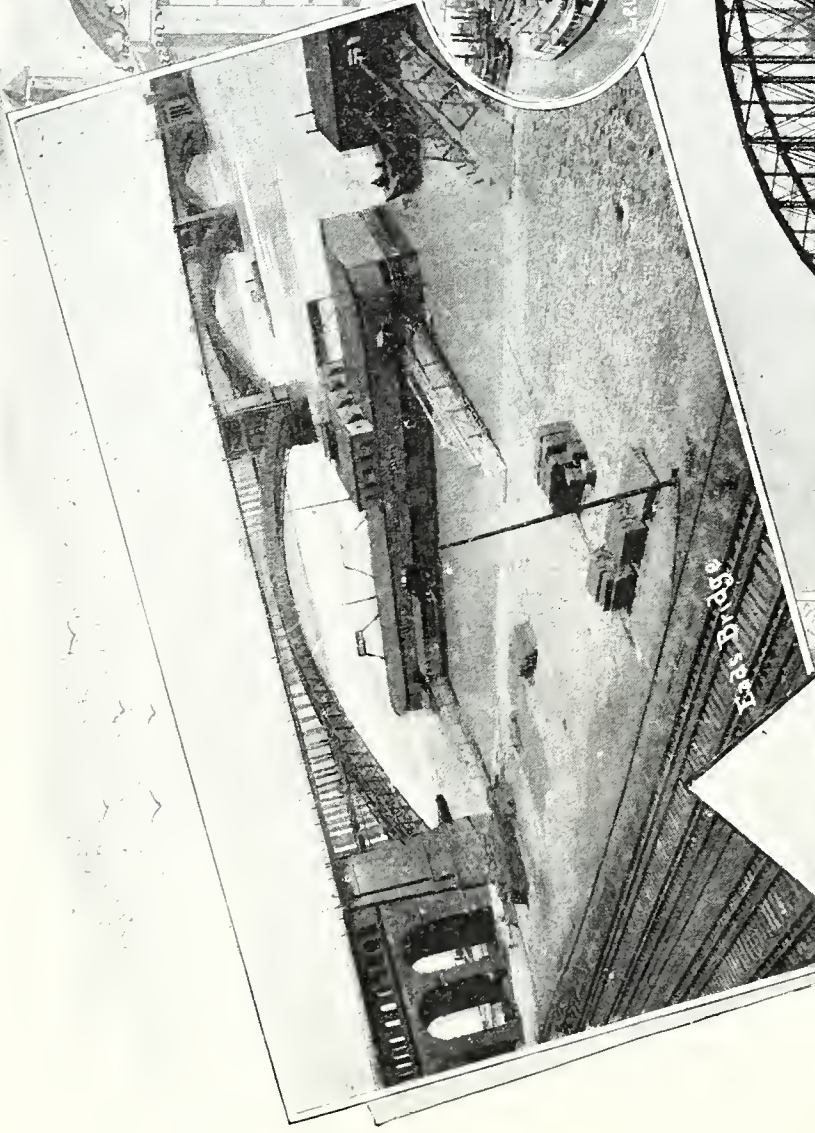




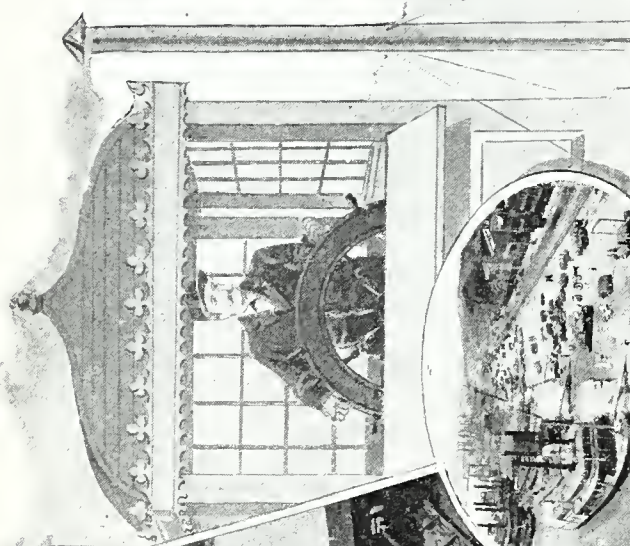
Merchants Bridge



Levee



East Bridge



THE MANUFACTURES OF ST. LOUIS.

NO work on the resources and achievements of Missouri would be complete without a somewhat detailed reference to the great manufacturing achievements of its leading cities, and hence a few of the leading manufactures will be enlarged upon for the purpose of setting forth to the public what the State has done in this regard. The census of 1890 brought to the front the fact that Missouri's largest city, St. Louis, is the fifth city in the United States in point of manufactures, and that it has of late years made a far greater growth in every department than any one of the great manufacturing cities of the East. Thus the city of New York showed an increase, during the eighties, in its manufactured products of a little over 50 per cent; Philadelphia, during the same period, scoring a gain of 72 per cent; Cincinnati, of 67 per cent, and Baltimore, of a little less than 70 per cent. During the same time the manufactures of St. Louis just doubled themselves, showing that the metropolis of the West and Southwest gained several strides on the great metropolis of the East and on other large manufacturing cities in the Atlantic States.

The same remark applies with equal force to the increase in the amount of capital invested in manufacturing. Baltimore just doubled its invested capital, while New York and Philadelphia scored increases of 97 and 91 per cent. St. Louis, on the other hand, made a gain of 180 per cent. Since the census was taken the increase in St. Louis has been remarkably rapid. Additional capital has been attracted from all parts of the country, and the amount now invested in manufactures is probably four times as large as it was in 1880. The growth in manufacturing, as shown in the returns, is three times as great as in population, and everything points to still further gain, the manufacturing industry showing a tendency to travel westward at a gait which is gratifying to Western people, but a trifle alarming to those whose interests are exclusively tied up in the East. The manufactures of St. Louis go into every State and Territory of the Union in the regular order of trade, and in staple articles this is the case continually all the year round. In some lines the exporting is still more marked and extends to countries far distant.

In nearly every line of manufacture the returns show a development which is astounding. In 1880, the amount of capital invested in manufactures in St. Louis was a trifle over \$50,000,000, while the annual production was valued at \$114,000,000; in 1890, the capital had increased to over \$120,000,000, while the annual production was found to have exceeded the

enormous total of \$213,000,000. Freight and shipping returns show that the increase in dollars is by no means overestimated, the tonnage during 1890 having been 16,500,000, of which about ten per cent was by water. Superintendent Porter's return of the number of hands employed and of the wages earned are also conclusive evidence of the fact that the cash returns are, if anything, underestimated. The number of manufacturing establishments in 1880 was 2,924, and these employed 41,825 hands, to whom they paid in wages, \$17,743,532; in 1890, returns were received from 5,402 factories, employing 85,942 hands, and paying \$48,555,731 in wages. In an address delivered in St. Louis during November, Mr. Porter enlarged on the returns which he then for the first time made public, and in concluding his remarks, he said:

"These are the simple official facts. They are not presented with local coloring, but the data have been collected by sworn government agents, under the strict rules which apply to all other communities, and for comparison with all other cities, under a system the tendencies of which must necessarily be to understatement rather than to overstatement."

It may be asked: What has caused St. Louis to make such rapid strides during the last ten years as a manufacturing center? The answer is easy to furnish. New St. Louis boasts of a generation of young, enterprising men who never allow an opportunity to slip by, and who combine energy and determination with that conservatism without which success can seldom be attained, and never maintained. The city is also aided by the comparatively small amount of borrowed capital upon which it relies. When the Baring failure shook the financial world, a little more than a year ago, the St. Louis banks did not even have to raise their discount rates, and, during the steady decrease in national bank clearings which followed for nine or ten months, St. Louis not only managed to hold its own, but its returns showed an increase week after week, while New York and other Eastern cities were mourning decreases. In January, 1891, the financial outlook throughout the country was far from bright, but the St. Louis clearings for the month were \$3,000,000 greater than during the corresponding month of 1890, and fifty per cent greater than in 1886. The increase has been well maintained since, and the gigantic increase in its manufactures is reflected as forcibly by its bank returns as by its pay rolls.

In addition to St. Louis' exceptional advantages as a distributing point, and hence as a manufacturing

center, its intrinsic advantages are remarkable, and as this fact becomes known, manufacturers move into it. In the first place there is an abundance of coal of good quality at very low prices, the manufacturer being able to rely on steady shipments of a good quality of coal at an average of about \$1.12 per ton, including all switching charges. It is no exaggeration to say that no large city in the world is thus favored. The nearest approach to it is to be found in Pennsylvania, but even in that State the cost to manufacturers is many cents per ton greater than in St. Louis. West of the Alleghanies and the Ohio river, no large city can rely on a supply at anything approaching the figures which proximity to abundant coal fields guarantees to St. Louis.

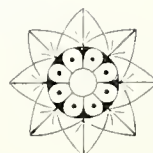
It is an acknowledged fact that the cost of power is regulated by the cost of coal, and hence St. Louis offers to the manufacturer inducements of a value dependent only upon the amount of power he needs to run his machinery and carry on his business. Another, and scarcely less tempting inducement is the abundance of water, and the very low rates charged to large consumers by the city, which owns the water works. In addition to cheap coal and water, St. Louis also possesses the advantages enjoyed by the five best-known manufacturing cities of Great Britain, both in regard to accessibility to material, and convenient means for distributing products and manufactures. The State of Missouri ranks first in the production of zinc, and other minerals are found in great abundance. Cotton and wool are also close at hand, and the probabilities are that before long St. Louis will have as high reputation in regard to the manufacture of clothing as it now possesses in boots and shoes. Effort is now being concentrated on a genuine and permanent improvement in the Mississippi river, and when this is completed and perfected, St. Louis will be in direct connection with Mexico and South America, and the large trade now carried on will be doubled and trebled.

The impartial observer comes to the conclusion, after a fair investigation, that St. Louis, as a manufacturing city, is really in its infancy, and, enormous as has been the growth of its manufactures during the last ten years, the increase of which appears insignificant when compared with the gain that will be made between the present time and the end of this century. This is not a surmise or a guess. It is rather the logical conclusion which follows a careful review of the situation, with a due regard to the fact already stated, that in no branch of industry is there so much as a suspicion of over-production. Where the demand is constantly increasing, and where the

natural advantages are uniformly in favor of the manufacturer, it is impossible to check the onward growth of a center of manufacture, and this is why St. Louis has forged to the front as a manufacturing city, and why it will continue to keep in the front rank.

The following figures, taken from the last official census, are eloquent of the city's manufacturing growth:

INDUSTRIES.	No. of Establishments.	Capital Employed.	Value of Product.
Agricultural Implements.....	4	\$ 686,484	\$ 1,107,454
Bags, Paper	3	174,425	431,228
Baking and Yeast Powder.....	14	373,181	403,772
Blacksmithing and Wheelwrighting.....	219	406,121	898,177
Bookbinding and Blank Book Making.....	14	196,618	336,227
Boots and Shoes.....	24	4,170,027	4,250,961
Bread and other Bakery Products.....	291	1,244,167	3,597,392
Brick and Tile.....	38	2,531,128	1,691,692
Carpentering.....	407	4,364,659	10,364,922
Carriages and Wagons.....	114	2,523,448	3,603,735
Cars (Railroad, Street and Repairs)	24	2,453,443	5,641,252
Chemicals	16	1,500,068	2,672,749
Clay and Pottery Products ..	13	939,996	899,855
Clothing, Men's.....	348	5,765,150	9,630,688
Coffee and Spices, Roasting and Grinding.....	9	816,588	2,466,392
Confectionery	48	1,078,426	2,462,037
Cooperage	71	1,042,643	1,912,779
Flouring and Grist Mill Products.....	21	4,320,955	12,641,000
Foundry and Machine Shop Product.....	103	10,184,926	11,945,493
Furniture, Upholstering and Chairs.....	121	3,108,211	4,658,546
Glass.....	5	842,354	838,930
Iron and Steel.....	6	2,655,199	2,513,761
Iron Works, Architectural and Ornamental.....	23	1,732,748	2,023,526
Leather, Tanned and Curried	15	682,753	1,502,680
Liquors, Malt.....	8	15,910,417	16,185,560
Lumber and other Mill Products and Logs.....	7	2,767,012	1,689,832
Lumber, Planing Mill Products	23	1,860,036	3,061,178
Masonry, Brick and Stone...	160	4,436,578	9,122,952
Oil, Linseed.....	3	1,018,562	1,438,201
Painting and Paper Hanging	331	867,194	2,841,041
Paints	14	3,498,107	3,163,818
Patent Medicines and Compounds	58	1,601,999	2,196,416
Plumbers' Materials.....	4	1,280,486	1,465,371
Plumbing and Gasfitting.....	124	581,067	1,651,169
Printing and Publishing.....	213	5,192,065	8,551,349
Saddlery and Harness.....	110	2,160,963	2,803,961
Slaughtering and Meat Packing.....	60	3,274,671	12,047,316
Soap and Candles.....	10	806,301	1,203,406
Tin Smithing, Copper Smithing and Sheet Iron Working.....	132	1,132,588	2,369,540
Tobacco, Chewing, Smoking and Snuff.....	12	3,894,320	14,354,165
Tobacco, Cigars and Cigarettes	296	787,520	1,558,401
All other Industries.....	2,632	35,915,588	54,515,383
Total, 1890.....	6,148	\$140,775,392	\$228,711,317
Total, 1880.....	2,924	\$ 50,832,885	\$114,333,375



SHOE MANUFACTURING.

MISSOURI is rapidly becoming the great shoe manufacturing State of America, and St.

Louis has already become by far the largest boot and shoe distributing center of the new world. The St. Louis shoe factories produced during the year 1892 boots and shoes which found a ready sale at prices exceeding in the aggregate \$11,000,000. No other single city in the Union can duplicate this total, though in the New England district the output is, of course, larger. But when it is remembered that ten or twelve years ago St. Louis did not manufacture one-fourth the shoes required for its own population, the immenseness of the business of to-day is best appreciated. In 1880 the value of the shoe output was less than \$600,000, and there has thus been an increase so large as to make it difficult to estimate it by the ordinary rules of percentage.

The excellence of St. Louis-made shoes, even more than the steady and continuous growth in both extent and population of St. Louis territory, has led to this remarkable growth in the shoe industry, while to the enterprise and assiduity of the manufacturers themselves must be attributed no small measure of the success. Tourists visiting the World's Fair from any section of the country, and more especially from foreign lands, will find in the shoe manufacturing of St. Louis an attraction well worthy of their consideration, and none who visit Missouri in order to see how shoes are made in the West will regret having done so.

The factories are all new and modern in equipment, and all the best labor-saving devices of the times can be seen at work side by side, while those who take an interest in the protection of the health of employes will find in operation every modern hygienic idea that is at all practicable.

All grades of shoes are manufactured in St. Louis, and for the information of European visitors it may be mentioned that the term "shoe" in America includes all kinds of what would be known as light or ordinary boots in England. The shoes made in Missouri are also particularly noted for durability and neatness, and to such a fine point has the manufacture been reduced, with so many intermediate sizes, that any foot can be fitted from stock in a few minutes.

Throughout the great West and Southwest the St. Louis trade mark is eagerly looked for, and the local manufacturers are so jealous of the reputation they have established that they are careful never to allow even a single pair of inferior boots or shoes to be shipped out. It is a matter of general comment throughout the Western and Southwestern States that when St. Louis shoes get a foothold in any city the advantage is never lost, and regular shipments become in order from that time on.

The most extraordinary feature of the boot and shoe trade of St. Louis and of Missouri is that, notwithstanding the great increase in local manufacture,

shipments from the East are growing steadily. A few years ago St. Louis was the third or fourth shoe distributing city in the country, but it is now receiving from New England a much larger number of cases of boots and shoes than any other city in America, making Missouri by far the largest boot and shoe distributing State in the Union. The value of shoes distributed to the retail trade through St. Louis from the East was about \$10,000,000 ten years ago; now the annual value is in excess of \$30,000,000, and the returns officially announced month by month so far this year, indicate that during 1893 the aggregate value of Eastern and Western-made shoes distributed to the trade by St. Louis houses will be at least \$50,000,000.

The new world bristles with evidences of how energy and fair dealing combined can do what Addison tells us is impossible—command success. But it is doubtful if a single instance could be quoted with anything like the confidence and assurance as can the shoe manufacturing industry of the State of Missouri and the City of St. Louis.

HAMILTON-BROWN SHOE COMPANY.

The Hamilton-Brown Shoe Company, of St. Louis, has the distinction of handling more shoes than any other establishment in the world. It does what few other firms would care to do, viz.: it publishes, month by month, the actual cash sales, and offers the most conclusive proofs of the accuracy of its computations. It does not sell goods on long time, and it has an established principle from which it never varies: not, under any circumstances, to agree to compromise, but to take 100 cents on the dollar or nothing. But for this rule its shipments would be even larger than they are now, but they are incredibly large as it is.

The firm's banner month was January, 1893, when the excellence of its goods, and the very low prices charged, brought up the total of *bona-fide* business with reputable retail and jobbing establishments to the enormous sum of \$538,000, which, it is interesting to note, is greater than the total annual sales of all the shoe factories of St. Louis twelve or fifteen years ago. The total for the first quarter of 1893 was \$1,273,308, as compared with \$1,054,417 for the first quarter of 1892. This enormous increase warrants the firm in anticipating sales this year to the extent of over \$5,000,000, thus easily breaking all records in this or any other country.

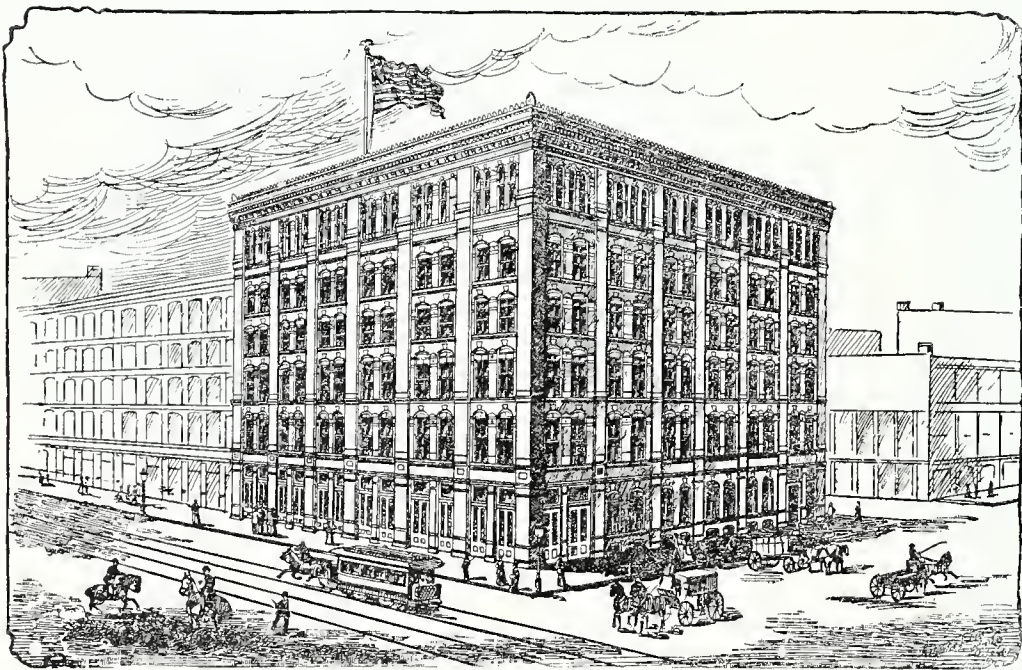
It is scarcely necessary, however, in discussing the Hamilton-Brown Shoe Company to make any estimates, because the Company has already established a record of \$4,000,000 per annum, which is in itself a matter of comment and admiration throughout the wholesale and retail boot and shoe world. Nine years ago its sales were just \$2,000,000 sort of \$2,000,000, and they have thus more than doubled their output and sales in the brief period of nine

years, with every prospect of a fifty per cent increase on the 1892 total long before the close of the present century.

Messrs. Hamilton and Brown commenced business as shoe manufacturers in St. Louis in 1872, Mr. James M. Hamilton coming from Tennessee, and Mr. A. D. Brown from Columbus, Mississippi. Their combined capital was \$23,000, with which they started in business on Main and Locust streets. The first year their sales amounted to \$200,000, but every year saw a substantial gain, and in 1884 the company was incorporated, with a capital stock of \$400,000, afterwards increased to \$750,000, fully paid up. In the same year very commodious premises were secured at the corner of Broadway and Washington avenue. These have, however, long since been outgrown, and at the present time the office and ware-

fuel results from the smoke-consuming apparatus in use.

The present officers of this uniquely prosperous establishment are: Mr. A. D. Brown, president; Mr. E. F. Williams, vice-president; Mr. R. F. Spencer, treasurer; and Mr. J. L. LaPrelle, secretary; these gentlemen, with Mr. John C. Roberts, constitute the board of directors. There is a staff of seventy-five in the office and warehouse, and there are fifty traveling men constantly on the road covering every State from Ohio, Pennsylvania, West Virginia and the Carolinas on the east, to the Pacific slope on the west, and from the Lakes to Mexico on the north and south. Large shipments are also made into old Mexico, and to the Sandwich Islands, and, indeed, there are few cities in or near the United States in which the Hamilton-Brown shoe brand is not a familiar sight. A branch house at 161 and 163



THE HAMILTON-BROWN WAREHOUSE.

avenue, in a magnificent brick building, having a floor space of 75 feet by 150 feet, and with six stories and the basement all crowded with popular lines of shoes. Stock is always carried to the value of about \$1,000,000, it being a vital principle with the house to always have a full stock on hand in every line, so that mail orders can be executed the same day as received.

The factory is situated at the corner of Twenty-first street and Lucas place. It was built by the firm, in 1889, at a cost of nearly \$300,000, and consists of five stories and a basement, with a floor space on each story of 100 feet by 140 feet. It is, without question the best lighted and most complete factory in the United States, and the welfare and comfort of the 873 men, who are kept constantly employed, has been studied so carefully that there are few hotels in the country with more elegant or suitable toilet and other facilities. Anti-smoke legislation causes no concern to the company, because no smoke ever issues from its lofty chimney. A great saving of

Franklin street, Chicago, is also maintained by this concern.

A great deal has been written from time to time about New St. Louis, and a more thoroughly representative type of this idea could not be furnished than this great shoe house. It is a firm composed of young, active men, who work from half-past seven in the morning till six o'clock at night, and give their personal attention to every detail in the great factory and the establishments connected with it. It is needless to say that a business of the magnitude they have built up could not be maintained without sterling merit in the articles produced and sold. The four staple articles on which special reliance is placed are the ladies' \$2.50 shoe, the men's \$2.50 shoe, the ladies' genuine hand-sewed shoe, and the gents' \$4.00 shoe. The two first-mentioned grades are durable and handsome, and very generally sworn by, while the two last-named are equal to the most costly custom-made shoes that can be produced without regard to expense.

FRIEDMAN BROTHERS & SCHAFER.

Among the firms which have helped bring the shoe manufacturing industry of Missouri, and more especially of St. Louis, to the front, must be mentioned the house of Friedman Brothers & Schafer, of St. Louis. The firm is composed of Messrs. S.

medium and high-grade shoes, and also men's and boy's camel and zebu skin shoes. The annual sales exceed \$2,500,000, and the territory supplied extends as far west as the Pacific Ocean, and as far south as the Gulf. Export trade with Mexico is also cultivated, and shipments are common to as distant States as Florida and California. The heaviest sales are, however, in the West and Southwest. The motto of the house is: "Voluminous sales and small profits," and a faithful adherence to the policy thus outlined has enabled the firm to make remarkably rapid progress, and to gain a position at once creditable to them. The very best material only is used, and the lasts, patterns and styles are of the latest and most improved type. Although the workmanship, as well as materials, are of the highest order, prices are so low that superior custom goods are placed within easy reach of the retail customer. The stock of Eastern shoes is always large, varied and complete, and orders are executed the same day as received, with the greatest possible promptness, and, in spite of the low prices charged, none but shoes which



Friedman, J. Friedman, J. H. Schafer, I. Friedman and A. Friedman, all of whom are well posted in the art of shoe manufacturing.

Friedman Brothers established a reputation for themselves in Boston and Memphis, but in 1891, recognizing the fact that shoe manufacturing was traveling west, they located in St. Louis, and associated themselves with Mr. J. H. Schafer, formerly senior partner of the firm of Schafer, Swarts & Company, St. Louis.

The new firm commenced business with a valuable connection, which it speedily built up and increased, until now the house ranks among the very first in the city. The rapid increase in its business necessitated the firm's securing commodious headquarters at the corner of Washington avenue and Ninth street, into which it has just moved. These offices, with storehouse in connection, may be regarded as one of the most complete in the country. The building has just been erected, at a cost of nearly half a million dollars, and is a handsome modern structure, seven stories high, with a commodious basement. It occupies a very large area, with one hundred feet front on Washington avenue, and two hundred and twenty-five feet on Ninth street, and is constructed on the slow combustion principle, with very highly ornamental elevation.

The factory of Friedman Brothers & Schafer is on Olive street, three blocks west of the Exposition. It occupies a site 50 feet by 150 feet, is seven stories high, with a large basement, and is a model shoe factory, equipped with the latest and most costly machinery. It finds steady employment for 600 hands, and has a capacity of 4,000 pairs of shoes daily.

The specialty of this house is the "Star and Crescent" brand of men's, women's and children's

answer every requirement in regard to appearance and durability are handled.



THE BROWN SHOE COMPANY.

The Brown Shoe Company (7 Shoes House) formerly Brown-Desnoyers Shoe Company, the largest and best-equipped shoe building in the world, has 330 feet frontage, and its eight floors contain two and a

among the very largest institutions in the shoe manufacturing world, and have become famous for the high standard of quality attained in the manufacture of men's, ladies', misses' and children's fine shoes.

They enjoy the distinction of being the first successful steam-power shoe manufacturers in St. Louis, and their success was the lever which started the manufacturing ball to rolling in that city.

Besides manufacturing enormous quantities of shoes, the company handles the best grade in all kinds of shoes from eastern factories.

Their rubber department is the first in the West, and records annual net sales from a quarter to a half million dollars, being exclusive St. Louis depot for Candee brand, and handling in connection with same the most desirable lower cost rubbers.

The principle of the house is to fill orders on regular lines the same day as received.

The company is uniquely prosperous, and has adopted the figure 7 as its guiding star in business. The house's sales are already run-

half acres, a model structure in every respect, heated by steam, lighted by electricity, equipped with one fine passenger and three large freight elevators, commodious offices and sample rooms, each department occupying its respective position, and all arranged on one grand plan of systematic economy so as to make the most complete and perfect shoe plant in the United States.

Established in 1878, on a comparatively small scale, to manufacture women's misses' and children's shoes, they have shown a steady and rapid advancement, until they rank

ning up into the millions, and their forty traveling salesmen cover every State, from Indiana to California, and from Minnesota to Florida.



THE BROWN SHOE COMPANY, ST. LOUIS.



SECTION OF BOTTOMING ROOM, 45 x 105.

CLOTHING.

THE clothing trade of St. Louis is developing colossal proportions. Last year the total output of the local factories amounted to nearly \$9,000,000. This is a wonderfully gratifying result to the people of St. Louis, and a condition of affairs that the citizens of rival towns are loath to believe.

Among the larger institutions the Schwab Clothing Company stands out conspicuous, not only by reason of the volume of their output, but also of the superior quality of their makes. The Schwab Brothers came to St. Louis some fifteen years ago. There were three of them, Jacob, Isaac and Max. Each had considerable capital, and each was further blessed with that indescribable business faculty of "making a success of whatever you take hold of." They in-

illustration of which is herewith presented, is located in the mammoth wholesale building which decorates the south side of Washington avenue, from Tenth to Eleventh streets. It is a magnificent, imposing-looking granite structure, seven stories high, well lighted, comprising a series of large, capacious apartments, and an elegantly furnished office on the ground floor.

The history of the rise of the Schwab Clothing Company is co-eral with the rise of the clothing industry in St. Louis. Mr. Isaac Schwab, speaking of this matter, said: "The fact that St. Louis produces a superior grade of clothing, as well as other articles, is due to the fact that it has a larger proportion of intelligent people among the laboring classes than any other city in the Union. The labor-



corporated their company for a very large amount, and opened up business on a grand scale, sending their traveling representatives to every part of the West and Southwest to advertise their goods. The system of liberality that characterized the dealings of the firm in its younger days is now bearing fruit in the magnificent trade it has established. To-day, Schwab Brothers are flooded with orders, and have a demand for their high-class goods that they with difficulty supply. As it is, their sales run from one and a half to two millions annually, and they have a pay roll of \$30,000 a month, undoubtedly the largest of any clothing establishment in the West.

This \$30,000 is not distributed between a horde of workmen packed together sardine-like in a crowded and ill-ventilated factory, for the company operates no single mammoth factory. Instead, it controls a number of small, though cozy and roomy, shops in various portions of the city, where all their garments are sewed together after being first designed by a force of cutters in the main house. The house, an

ing people here are largely composed of Germans and Americans, and are not permeated with that objectionable class of emigrants so plentiful in other cities, which, unable to live otherwise, goes to work at trades it knows nothing about, and, consequently, produces a very cheap and inferior class of work. Then, again, the quality of St. Louis work is better because none of it is produced in sweat-shops or tenement houses, but is taken, for the most part, either to the homes of the employees, or to one of the many small private shops."

Be that as it may, no city has ever shown such a remarkable increase in its clothing industry as St. Louis has since 1880. In the succeeding ten years the number of houses had increased from 100 to 348, the number of hands employed from 3,000 to 10,000, and the combined capital from \$1,300,000 to \$6,000,000. This is certainly a remarkable showing for the local clothing trade, and if the city is indebted for this gratifying condition of things to any one person more than another, it is the Schwab Clothing Company.

DRY GOODS.

THE dry goods business transacted by the large cities of Missouri is colossal in character, the St. Louis establishments alone selling goods to the value of \$45,000,000 during the year 1892. The total for 1891 was returned at about \$35,000,000 and the increase shown in these years is being thoroughly maintained month by month. The wholesale dry goods section of St. Louis has Washington avenue for its center, and some of the largest establishments in the West have their headquarters on or close to that great thoroughfare; the retail houses are more scattered, with the largest on Broadway and Sixth streets. In addition to the patronage of over half a million local residents, the latter houses do an immense business by aid of mail and express, every mail bringing in numbers of orders, not only from all parts of Missouri, but frequently from adjoining States.

The dry goods palaces are well named, for they are both lofty and substantial in every respect, and floor after floor is heavily stocked with goods of every grade but the poorest. All classes have to be catered to, but the Western buyer knows from experience that it is no use obtaining for his house inferior goods whose only recommendation is cheapness. Prices are of course very low where so much competition exists as in a city the size of St. Louis, but at the same time there has been no falling off in quality with the great reduction in prices, and there is no city in America where better value can be obtained for money.

The retail houses frequently ship goods to very distant points, but the wholesale houses have quite a unique representation in this respect. There is scarcely a city in the South or Southwestern States whose merchants do not look in this direction for supplies, and even as far southeast as Georgia, goods are shipped regularly from St. Louis. A large territory which was hitherto regarded as tributary to Chicago, is now distinctly St. Louis in every respect, and incursions are being made almost every week into districts which, up to a comparatively recent date, were regarded as inaccessible and beyond the natural trade boundaries.

This enormous business in dry goods is largely due to the fact that during the fall season hundreds of thousands of people visit St. Louis to take part in the festivities. The St. Louis Autumnal Festivities Association, with its million-dollar fund, has been most successful in providing entertainment for strangers, and a majority of the inhabitants in the States adjoining Missouri visit St. Louis at least once every fall. Experience has taught them that the very large assortments, the low prices and the careful manner in which the wants of the trade are catered to, make it a good plan to purchase largely in advance while in the city, and the trade during the

fall months is in consequence phenomenally large. All the year round the influence of what may be called the festivity trade is felt, because those who buy while here continue to send in orders after reaching their homes.

The same conditions are at work in regard to the wholesale trade. There is quite a reunion at the large Washington avenue emporium day after day; thousands of merchants who draw their supplies from St. Louis visiting the city in the fall, getting acquainted with their wholesale houses, and also looking through the large stocks of goods carried and making arrangements for the coming winter business. This is also the case with the millinery trade of St. Louis, which is exceptionally large, and which also extends over a very large section of the country. The hat trade of the city is closely connected with the interests already mentioned. It has assumed large proportions and is extending over an increased area of States. Both in manufacturing and jobbing, St. Louis is well to the front in this industry, and the amount of capital employed, as well as the annual sales, is very large indeed. It is estimated that the jobbing business in hats and caps alone now amounts to about five million dollars a year, an increase of from ten to twenty per cent being recorded every year. The establishments which keep up this work are noted for their high standing in the trade, and customers once attained are seldom lost.

No greater mistake can be made than to suppose that the Dry Goods, Millinery, Hats and Caps, and Clothing Trade of St. Louis are limited in their area, and that only goods suitable for sectional trade are handled. While it is true that the bulk of the shipments are to points between the Rocky mountains and the Mississippi river, yet it is also true that immense shipments are made constantly to very much more distant points, while the demand from the strictly Eastern section is constantly increasing. The census returns are eloquent of the volume of business transacted in this line, and the shipping reports also afford an answerable proof that wherever St. Louis dry goods or similar commodities are received, they earn for themselves a high grade reputation and are constantly called for in future.

The following is from the Merchants' Exchange report for 1892:

The dry goods trade shows no trace of falling off in the vigor and power it has exhibited since the time when the city came to be recognized as a supply point for the Western States, and no signs of yielding its claims to rival cities. So far from this, it exhibits a strong and steady increase, and an extension of the territory covered. All the leading wholesale houses have had their hands full, and all report a prosperous year, with larger sales, easy collections and trifling losses. The estimated increase in the aggregate sales is 15 per cent over 1891.

HARGADINE-MCKITTRICK DRY GOODS COMPANY.

THE Hargadine-McKittrick Dry Goods Company is the present style of the firm carrying on the business established in 1835 by Mr. Wayman Crow, whose long and honorable career is closely interwoven with the growth of St. Louis, and with almost every enterprise for the city's advancement, his good work being continued up to the day of his death, which occurred in 1884. Mr. Wm. A. Hargadine, whose name heads the title of the present corporation, was Mr. Crow's partner in this establishment from the year 1849 to the day of his death. He survived his old and much-loved partner until January 4, 1892. Mr. Hugh McKittrick, who is now president of the company, is the last of this trio of old partners, whose pleasant and profitable association extended over nearly half a century.

Mr. Hargadine succeeded Mr. Crow, and Mr. McKittrick followed Mr. Hargadine as the general buyer of the house, and probably no merchant in the

the business, and who had the benefit of a full training and tuition at the hands of the gentlemen who established the house and assured its success. The policy of the Hargadine-McKittrick Company from its inception has been to buy goods of the best possible character where money will go the farthest, and to pay cash for all purchases, and thus secure the largest discounts. A rigid adherence to this rule has convinced the customers of the house that there are no better prices to be obtained, and that everything is sold as low as good quality will permit. The house is known for its solid financial strength, and in the sixteen States and Territories in which it does business no better reference is required of a merchant than that he is a regular customer of the Hargadine-McKittrick Dry Goods Company.

The cut accompanying this article represents only the salesroom and store. In addition to this the company utilizes two large warehouses, and has also



United States is better known or more largely esteemed among the manufacturers or importers of dry goods in the United States than the president of the Hargadine-McKittrick Dry Goods Company. In this particular line of buying for the wants of the trade, Mr. Thos. H. McKittrick has quite recently succeeded his father. He has inherited much of his father's tact, and of the popularity which good judgment and courteous treatment always produce, and he makes a very able vice-president of this substantial and well-known firm.

Mr. Hugh McKittrick, Jr., second son and namesake of the president, is secretary of the company, and the treasurership is filled by Mr. Edward J. Glasgow, Jr., the son of one of the oldest coffee importers of St. Louis, and a son-in-law of the late Mr. Hargadine. The firm believes in the New St. Louis idea, and is managed in all the active and sale departments by young men who have grown up with

a factory in which pants, overalls, and mechanics' and artisans' clothing are made. The brands of these, the "Coronet" and the "Black Crow," are popular all over the country. Forty or fifty years ago Mr. Hargadine, on the east side of the Mississippi river, from Cairo to St. Paul, and Mr. McKittrick, on the west side, from Santa Fe to Omaha, made their annual trips on horseback, and it was during these trips, often remarkable and memorable for sensational incidents, that the foundation was laid for the friendship which has since existed between the Hargadine-McKittrick Dry Goods Company and its numerous customers.

The company's traveling men now cover the territory from the Gulf to the Dakotas, and they find among their business connections and acquaintances many of the original customers of the house, who cherish as very pleasant memories their first intercourse with the founders of the firm.

ROTHSCHILD BROS.

ONE of the industries which has given enviable prominence to St. Louis is the jobbing of hats, caps and gloves. Large cities are apt to point with pride to the fact that they possess



SECOND FLOOR, SHOWING 1,300 STYLES FUR HATS.

an establishment which is the largest of its kind in the country. St. Louis is able to make several claims of this kind, and of no institution is either the city or the State more proud than of the mammoth wholesale hat, cap and glove house of Rothschild Bros.

This firm is distinctly a Missouri institution, and it is one of the houses which took a prominent part in making Washington avenue, St. Louis, one of the greatest wholesale manufacturing streets in the West. The house has made the hat and cap trade of St. Louis what it is to-day. When firms of as high standing as this one devote their entire capital and energy to one branch of trade, it is not remarkable when that trade becomes of paramount importance to the locality in which they settle. Rothschild Bros. rank among the first hat and cap jobbers in the United States. They carry the largest exclusive stock of men's headwear of any house in the country, and the way they are increasing their trade environments every year seems to point to renewed triumphs and increased success as time wears on.

Ever since this firm opened business success has crowned its efforts, and increased trade has caused repeated enlargements and extensions. Their former establishment, 815 Washington ave., was very large, and admirably adapted to its purpose, but the business entirely outgrowing it, the magnificent establishment at the corner of Washington avenue and Eleventh street was moved into. Here is now situated one of the finest and

most attractive hat and cap stores in the country. It has a most handsome elevation, and also has a total floor space of 52,000 square feet. Even this vast space would be entirely inadequate to the immense business of the concern were not the most careful system adopted and adhered to by the heads of the firm and their competent staff. The illustrations herewith give an interesting idea of the way in which the stock is arranged and displayed, and will probably be the means of inducing quite a large number of visitors to the West this year to go through the establishment themselves, and get a few new ideas as to the way men's hats and caps are handled in large quantities.

The trade of this house is not confined to the State of Missouri, although well-nigh every city in the State draws its supplies from it. Shipments are made as far east as Indiana, while on the west goods are invoiced almost daily to cities on the Pacific Slope. The Gulf of Mexico is the only boundary line of the Southern trade, and no intervening section or county has been overlooked by the traveling men of this house.

Among the leading brands of hats made by this firm may be mentioned, the "World Wide," "Metropolitan," "Star," "Giant," and "St. Louis."



These are all high-grade hats, well finished in every respect, but they are sold in such large numbers that they are placed on the market at very low prices. The firm is composed of and officered by men of great experience and tact, and the success which meets their efforts in every direction is regarded as well deserved and as a tribute to the city and State as well as to the house itself.

Certain it is that the Rothschild hats are in constant demand, and do not recognize competition of any kind.



THIRD FLOOR, GLOVE DEPARTMENT.

PRATT, SIMMONS & KRAUSNICK.

THE oldest house in St. Louis in business as jobbers of millinery and fancy goods, and as manufacturers and trimmers of hats, is the firm of Pratt, Simmons & Krausnick, whose head office is at 509 Washington avenue. The firm consists of Mr. Frank A. Pratt, Mr. Stanley W. Simmons, Mr. Walter Krausnick and Mr. Frank Letzig. These gentlemen, while representing the young, pushing element of St. Louis, have all had the benefit of a long experience and are regarded as experts in the

He gives his special attention to the financial department.

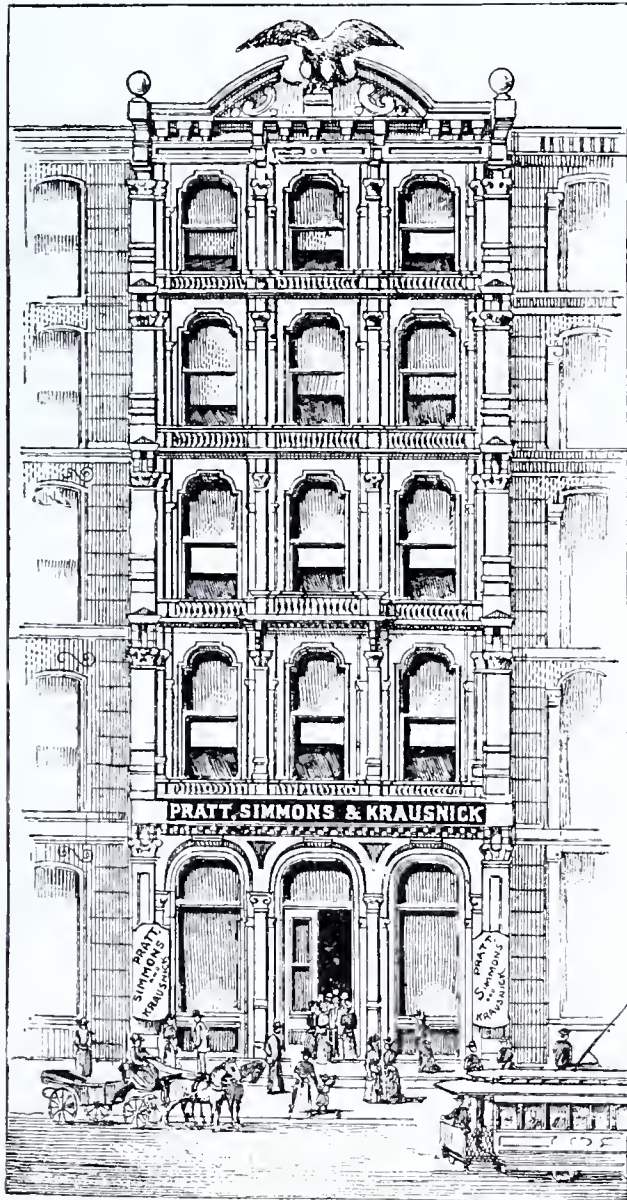
Messrs. Krausnick and Letzig have both been in the business from boyhood, and they take care of the buying and selling departments with great ability.

The head office of the building is a very handsome five-story building 140 feet in depth. The first floor is devoted entirely to silk goods. On the second floor flowers and feathers are to be found, the notions and trimming department is on the third floor, the hats are on the fourth floor and the packing and charging department is on the fifth. There are very few offices and warehouses in the millinery and fancy goods in this country which are as extensive or as well adapted as those of this firm. Order reigns supreme in every department and no detail is considered too trifling to need personal attention. The stock carried is always exceedingly large and orders in every line of millinery, fancy goods, hats and the like are thoroughly represented. The factory is situated at 810 North Broadway, within two or three blocks of the office and warehouse. Three floors in this establishment are kept exclusively for the trimming of hats for the merchant trade, and almost every variety of hats is turned out. The prices charged are remarkably low for the high grade of goods carried and a very high standard of excellence is insisted upon.

The firm employs about 250 hands and has a capital of \$300,000 embarked in the business. It has twenty traveling salesmen constantly on the road covering every State between Montana, Colorado, Alabama and New Mexico, the sales of the firm extending over the entire Western and Southern country, with the addition of a large number of valuable orders frequently received from Eastern and Northern points. The geographical location of St. Louis enables it to distribute its goods to the best possible advantage, while the long experience of the managers of the firm as well as the policy adopted of paying cash for goods and hence securing the lowest possible prices, has caused the business of the house to increase in even more rapid proportion than the general manufacturing and jobbing trade of the city.

The sales now exceed \$1,000,000 a year, and every month shows a healthy increase over the one next preceding it. A customer once made is retained for an almost indefinite period, and the transactions of the house are uniformly pleasant and agreeable.

Messrs. Pratt, Simmons & Krausnick issue one of the finest trade magazines in the country. This is known as the "Style," of which a Columbian edition has just been issued, which the house very aptly described as the City of Paris of to-day compared with the Santa Maria of the days of Columbus.



business to which they devote their attention. Mr. Frank A. Pratt, formerly of Hartford, Conn., has been in the business for upward of forty years. Mr. Simmons, who, prior to settling in St. Louis, had the benefit of considerable experience in New York, has been in business in the West for about thirty years.

PAPER, AND PRINTERS' SUPPLIES.

A STATE as enterprising and progressive as Missouri has naturally an immense call for paper and other supplies, from the whole army of printers within its boundaries, as well as from those doing business in the immense network of States which look upon the great cities of Missouri as their legitimate and almost exclusive source of supply.

St. Louis is spoken of in the trade as the best publishing center in America, and it is certain that within its limits are to be found some of the largest publishing and printing houses of the New World. These call for supplies of every description, and for enormous quantities of paper of every description. Unfortunately, the manufacture of paper is one of the few industries which has not yet taken Horace Greeley's advice and gone west, though the establishment of several mills in Missouri and other western and semi-western States bids fair to show that this industry is about to fall in line with others, and move into that section of the United States which gives more evidence of growth than any other, and which calls incessantly for more manufacturing enterprise and capital.

The time is not far distant when Missouri will export more paper than it imports, though at the present time it is the jobbing rather than the manufacturing feature of this trade which must be looked upon with the greatest pride. Orders for paper are received in immense numbers from all the Western States, while the demand from the city itself is exceptionally large. All of the great cities of Missouri can point with pride to the immense and complete printing establishments within their limits. It is estimated that these printing establishments use every year nearly \$3,000,000 worth of materials, while they find constant employment for at least 7,000 skilled workmen, to say nothing of the whole army of unskilled laborers.

In St. Louis, particularly, some of these establishments are deserving of more than passing mention. This book was produced in an incredibly short space of time, the entire work, including printing, binding and illustration, all being done under one roof, in what has been frequently described as the most complete printing, bookmaking and stationery establishment on the Continent. The city also boasts of the largest blank-book manufactory in America, and of countless other houses, all large, complete, and able to undertake orders of any magnitude, and execute them satisfactorily without sending any portion of the work outside the State. Two highly illustrated works which have been favorably commented on by prominent citizens and experts in every State in the Union, and in even more

flattering terms in Canada and England, have lately been issued by a St. Louis house. These marvels of typographical and artistic elegance are known as "St. Louis Through a Camera" and the "Discovery of Hot Springs by De Soto." These are mentioned as an illustration of the fact that Missouri can produce without outside aid, the very best work in this line that the most fastidious could desire.

So it will be seen that even the local demand is sufficient to keep a number of large paper establishments busy all the year round, even if no goods were shipped except to such prominent centers as St. Louis, Kansas City, St. Joseph and Springfield. But this is supposing a condition of affairs which by no means exists. Paper is shipped in carload lots as far west as the Pacific ocean, as far south as the Gulf, and to many States and districts which would be expected under ordinary circumstances to draw their supplies almost exclusively from the mills and agencies in the Atlantic States. Statistics are lacking, showing the amount of capital and the number of men employed in the wholesale paper trade, but these are known to be very large and to be steadily increasing in consequence of the healthy demand, and the steady growth of the establishments such as those briefly mentioned above.

THE DICKINSON PAPER COMPANY.

The George R. Dickinson Paper Company is one of the large concerns which manufactures its goods in the Eastern States, and operates a branch in St. Louis, the great distributing point of the West and Southwest. The mills of this Company are located at Holyoke, Mass., and have a capacity of 50 tons per day of various kinds and grades of paper. Their plant is something unusually extensive, and, fitted up as it is with the most modern mechanical appliances manned by skilled help, its output is necessarily of A No. 1 quality.

The St. Louis office and salesroom are located at 316 and 318 North Third street, with warehouses at 313 and 315 North Second street, and 611 North Main street.

This Company has a decided advantage over other houses in this market, manufacturing as it does its own paper, by reason of which it is enabled to give prompt service, and to furnish its trade with paper of uniformly excellent quality the year round. This advantage seems to have been recognized by the trade at large, as is demonstrated by the large and healthy growth of the business, which ranks among the largest in the country.

GRAHAM PAPER CO.

The Graham Paper Company has its offices and warehouses on Main and Olive streets, St. Louis, occupying three very large establishments and doing an ever-increasing business. Mr. Benjamin B. Graham is president of the company, Mr. H. V. Graham, vice-president; Mr. A. D. Cooper, treasurer, and Mr. Geo. D. Allen, secretary, while Mr. H. M. French is in charge of the buying department and Mr. J. P. Tirrill, at the head of the sales department.

This is one of the oldest paper houses in the West, having been established as far back as 1855, and having, during the thirty-eight years of its career, built up what is regarded as the largest general paper business in the United States. It was reorganized last year, and is now carrying on business very prosperously both at headquarters and at its Kansas City, Minneapolis and San Francisco branches. The firm name is esteemed very highly at all these points and also in every city in which it has opened up business, and the number of its regular customers is increasing with great rapidity.

The Graham Paper Company fills an immense number of large orders from eastern and northern cities, and is able to say that there is scarcely a State or Territory in the United States in which it has not a large number of regular correspondents and purchasers. The company also does quite a large exporting trade, frequently billing goods to Mexico and Australia. It makes a great feature of trade of this kind, and is able to duplicate prices from well-nigh any distributing point in the civilized world.

The specialty of the Graham Paper Company of Missouri is the carrying of a very large stock. The company acts as agent for all the higher grade of manufacturers, and its warehouses, at 1720 to 1730 N. Main street and 1239 to 1247 N. Sixth street, St. Louis, have always on hand sufficient paper of every class and grade to supply orders promptly, it being quite a common occurrence for telegraphic orders to be shipped within an hour or two of receipt. The confidence in the ability of the house to fill orders in this way is largely responsible for its success.

The Graham Paper Company handles papers of all kinds in such quantities that it is able to buy at the mills at prices which enable them to duplicate what are known as mill market prices. A large number of the best mills in the country regard the Graham Paper Company as a safety valve for the disposal of their surplus product in the better grades of paper, and the favorable terms made on sales of this kind enable them to supply their customers at very low prices for a grade of goods many of them would not be able to handle under ordinary conditions. Many of the surplus products sales are made to this company at less than cost to the manufacturers, and hence the Graham Paper Company can, and often does, undersell the mills themselves.

ST. LOUIS PAPER CO.

Few Missouri companies do business over a larger area than the St. Louis Paper Company, an institution which is known at once for the importance and extent of its business and for the high reputation made by its founders and the gentlemen who are now at the head of its affairs. The company was organized about ten years ago, by Messrs. O. L. Garrison, W. G. Chappell and A. H. Pirie, under the firm name of the Garrison-Chappell-Pirie Paper Company. All three of the gentlemen named were favorably known in St. Louis commercial and manufacturing circles, and they were not long in gathering around them an exceedingly valuable connection, and in establishing a business of great value.



The growth of the territory supplied by them resulted in a great increase in the demand from their various customers, and in the year 1887 the returns were found to be exceedingly large, with the reputation of the house thoroughly established throughout the Western and Southern States. In July of that year, the corporate name was changed to the St. Louis Paper Company, a name which has long since become justly respected by the trade.

Just prior to the change in name, the company purchased the old-established business of Snider & Holmes, and in 1891 it bought out the paper department of the St. Louis Type Foundry. The St. Louis Paper Company may hence be described as the consolidation of three of the best known paper houses of the West, and it easily maintains the high reputation it earned for itself when combining these three established interests. The stock of goods carried is one of the most complete in the West, embracing everything in its line used by printers and publishers. A specialty is made of wrapping paper and twines, and in these lines the company acknowledges no superior. The city trade of this house is very large, but it also ships daily to almost every State in the West, South and Southwest.

It is interesting to note that the present officers and directors of the company are the gentlemen who originally organized it. Mr. O. L. Garrison is president; Mr. W. G. Chappell, vice-president, and Mr. A. H. Pirie, secretary and treasurer.

AGRICULTURAL AND OTHER MACHINERY.

ST. LOUIS is naturally the home of immense activity for all classes of machinery required by farmers. Its railroad facilities and the short distance to the great corn-raising States create and maintain a large demand for all agricultural implements used in corn planting, raising and harvesting, and the vastness of the interests of agriculture generally keeps up a demand for all articles needed by the farmer. The special relations that exist between St. Louis and the Southern States also insure a constant and seldom varying demand for another class of machinery, while so fortunate is St. Louis in regard to location that it is also called upon to supply a very large proportion of the rice machinery needed in the rice-growing sections.

In another part of this work is mentioned the Spanish Club and its influence on trade with Mexico and the Spanish-American republics. Among the articles most affected by the action of this Club are the different lines of machinery which may be classed as of special use in agriculture and kindred industries. In a special report on the trade between St. Louis, Mexico, Cuba and other parts of the New World, published in the Merchants' Exchange Statement for 1892, it is pointed out that the greatest drawback to the proper development of commercial relations with the countries of Latin-America has been a lack of information as to their business needs, the rather exacting requirements of their customs tariff, and the difficulty of obtaining reliable data and information as to the standing and responsibility of the merchants of those countries. These, however, are but "trifles light as air" to the enterprising merchant and manufacturer intent on making known his wares in foreign marts, and, since the organization of the St. Louis Spanish Club, some two years ago, which has done such good work in advertising our city throughout the Republic of Mexico, these trifles should have no bearing whatever, as the Club possesses every facility for lessening these difficulties by furnishing reliable reports as to the standing of the business men of not only Mexico and Cuba, but Central and South America as well, while at the same time supplying all needed information as to the articles which find most ready sale there, and the requisite details as to Custom House regulations, duties, etc.; furnishing also a medium for the carrying on of correspondence in the language of these different countries.

The Government of Mexico has displayed an earnest desire to promote commerce with the United States, and is constantly making reductions and modifications in its tariff, so as to enable the importation of articles of commerce which are in demand in that republic. This is evidenced by the recent reductions which have been made on a number of articles of general consumption which have heretofore been subject to high duties, and the removal of some of the "alcabalas," or State taxes, which such articles were formerly obliged to pay upon their passage through the republic.

Foremost amongst the articles which these countries require for their proper development, and which are being supplied by the United States generally, and largely by St. Louis, may be mentioned agricultural implements and machinery, saw mills, mill and mining supplies, woodworking machinery, steam and traction engines, iron and steel, shovels, hardware, iron tubing and piping, sewing machines, rubber and leather belting, furniture, smoked and salt meats, lard, tallow, candles, beer, groceries and provisions, wooden and willowware, glassware, fire-clay, cement, fire-brick, drugs and chemicals, paints and oils, cordage, twines, rubber goods, lumber, street and railway cars, railway material and supplies, printing presses, blank books and stationery, jail work, horses, corn, cattle and hogs.

But great as is the demand from Mexico and other Spanish-speaking countries, the bulk of the shipments from St. Louis are to points within the United States, and these shipments are so large that there is scarcely a district in the Union in which some article of machinery made in this city is not prominent and popular. An immense number of patents of the greatest possible value are owned by St. Louis manufacturers, and the fullest advantage is taken of every opportunity to introduce these specialties in the regions where they are most required. The census returns show what a large amount of capital is involved in this business, and what an important influence it has on the city's growth and produce.

The manufacture of wagons and vehicles of all kinds has been carried on in the city for years, and is constantly on the increase, St. Louis being now one of the most prominent vehicle manufacturing cities in the country. In saddlery and harness, which is to a large extent a kindred interest, St. Louis is absolutely the best market in the United States, and the popularity of its leather products is such as to emphasize their value and bring prominence to the city which manufactures them in such enormous quantities.

In cars of every description the output is remarkably large, and in all kinds of heavy machinery there seems practically no limit to the producing capacity of the city or to the demands of its patrons.

In this connection it is interesting to note that the agricultural depression of which so much has been written, has not affected the St. Louis trade in any way. Official reports from Kansas City indicate that a similar condition of affairs exists there. The reports stating that the trade shows an increase of 20.54 per cent, with fair to good collections, which throws a flood of light upon the condition of the farming interest, notwithstanding strenuous efforts have been made to make it appear as in a bankrupt condition. Twenty-nine houses are engaged in this line in Kansas City. They employ a capital of \$1,587,500, carry stocks of \$1,372,500, and had a trade for the year of \$7,775,000. These figures are very conservative.

THE MANSUR & TEBBETTS IMPLEMENT COMPANY.

ONE of the most important concerns in the West handling agricultural implements of every description is the Mansur & Tebbetts Implement Company, of St. Louis. This business has been in existence, practically, for about twenty years, for it was in the year 1874 that Messrs. A. Mansur and L. B. Tebbetts established, in St. Louis, a branch of the John Deere-Moline Plow Works, and commenced the sale on a large scale of the celebrated John Deere plows and cultivators.

The firm was originally established under the firm name of Deere, Mansur & Co., but in September, 1889, it was incorporated under the name of the Mansur & Tebbetts Implement Company, with Mr. A. Mansur as president; Mr. L. B. Tebbetts, vice-president and Mr. G. S. Tebbetts, secretary. This company is the sole agent for the territory comprising Missouri, Southern Illinois, Arkansas, Texas, Louisiana, Tennessee, Mississippi, Georgia, Florida and the Indian Territory, for the John Deere plows, and the products of the Moline Wagon Company, and the Deere & Mansur Company.

The popularity of the John Deere plows in all western and southern districts is so general that it would be idle to attempt to describe them fully or to enlarge upon their merits. For nearly half a century these plows have been recognized as the very best for western farmers, and with the latest improvements they excel all competitors not only in strength and durability, but also in lightness of draught and ease of management. The Mansur & Tebbetts Company handles Deere & Company's Steel Walking Plows, Chilled Plows, Gilpin Sulky Plows, Deere Cultivators, the new Deal Wheeled Walking Plows, Deere's Gazelle Tricycle Plow, Deere & Mansur Corn Planters, Deere Check Rowers, Disc Harrows and Hay Rakes, as well as all kinds of Farm and Spring Wagons, Carriages, Buggies and other articles required in the line of farm machinery.

The house also manufactures carriages in large numbers in its own factory, and is increasing this line of business with great rapidity. Combining manu-

facturing and jobbing in this way, the company has exceptional facilities for filling orders for all classes of goods in its line. It is part proprietor of the Deere & Mansur Company and the Moline Wagon Works, both at Moline, and is interested in a variety of ways in the manufacture and distribution of agricultural implements and machinery.

The premises occupied by this large house are a six-story and basement building covering an entire block on Spruce, Ninth and Tenth streets. Its carriage manufacturing is carried on in a factory of its own, established in 1891, under the name of the Mansur & Tebbetts Carriage Manufactory. To Mr. A. Mansur, the head of this house, belongs the honor

of having been the first to inaugurate the jobbing implement business in the West. In 1869, he established the house of Deere, Mansur & Company, in Kansas City, and thus for a quarter of a century he has been interested directly in the handling of agricultural implements in the West. His standing with the community is very high, and although his time is so fully occupied with his own business, he is also a director in the Crystal City Glass Works, the largest glass works in the

country, a director in the St. Louis Fair Association and in the St. Louis Trust Company, vice-president of the American Exchange Bank and president of the Forest Park Improvement Association.

Mr. L. B. Tebbetts is another citizen held in the highest possible repute in St. Louis and Missouri. He is president of the St. Louis Traffic Commission, and under his able guidance that body has been able to secure the adjustment of rates for freight business which have proved of untold value to the city and district. He is also a director in the Continental National Bank, and is to the front in a number of important local and other enterprises. He has co-operated with Mr. Mansur in establishing for the firm the highest possible reputation and standing in the trade and among purchasers of agricultural machinery, and the oldest farm machinery jobbing house in the West has every reason to be proud of the men who direct its counsels.



KINGSLAND & DOUGLAS MANUFACTURING COMPANY.

HALF a century of uninterrupted commercial prosperity is the proud record of the Kingsland & Douglas Manufacturing Company, one of Missouri's largest and most representative enterprises. The business was founded fifty years ago by Messrs. Geo. Kingsland and D. K. Ferguson, taking the name of Kingsland & Ferguson. From the first day of its establishment it prospered, and it soon built up a magnificent connection, manufacturing and selling agricultural and sawmilling machinery for thirty years. In 1874 Mr. George Kingsland died, leaving behind him an enviable reputation as an esteemed citizen and a uniquely successful manufacturing and business man. He was succeeded by his son, Mr. L. D. Kingsland, who is at the head of what has since grown to be one of the most prosperous manufacturing corporations in the West.

In 1887 Mr. Ferguson retired to become the president of the Mechanics' Bank, in St. Louis, and Kingsland & Douglas Manufacturing Co. was incorporated.

If the business was successful prior to the incorporation it is doubly and trebly so under the new regime, and the machinery manufactured by the company has a name and popularity throughout the entire West and South which it would be very difficult to duplicate. There are a large number of customers along the Rio Grande in the country of the Aztecs and the Montezumas, as well as in all parts of what may be spoken of as "Spanish-America."

The company's factory and plant are located on Mullanphy street, extending from Eleventh to Thirteenth street and covering almost two entire blocks. The plant consists of six massive and substantial brick buildings, each devoted to the manufacture or development of some specialty in modern farm machinery.

The company prides itself on being the first to manufacture Circular Saw Mills west of the Alleghany Mountains. They controlled the first patent for this line of machinery, and with their experience and knowledge of the wants of the trade, they have from time to time added improvements, until now, with their seven sizes of mills (from their largest mammoth to the small plantation), and patented head blocks, together with all the varied machinery which goes to make up either a small or large sawmill plant, they are enabled to meet the wants of all classes of customers.

The company has also been prominently known as manufacturers of high-class Agricultural Machinery. Chief among these is their threshing machine. They commenced manufacturing in 1856 the vibrating style of threshers, under special patents, and have from time to time added to them by taking out new patents both in this country and abroad, until now they not only make a perfect machine for threshing wheat, but also for rice, as well as a special machine for Mexico. All their machines are furnished with plain or traction engines or horse powers.

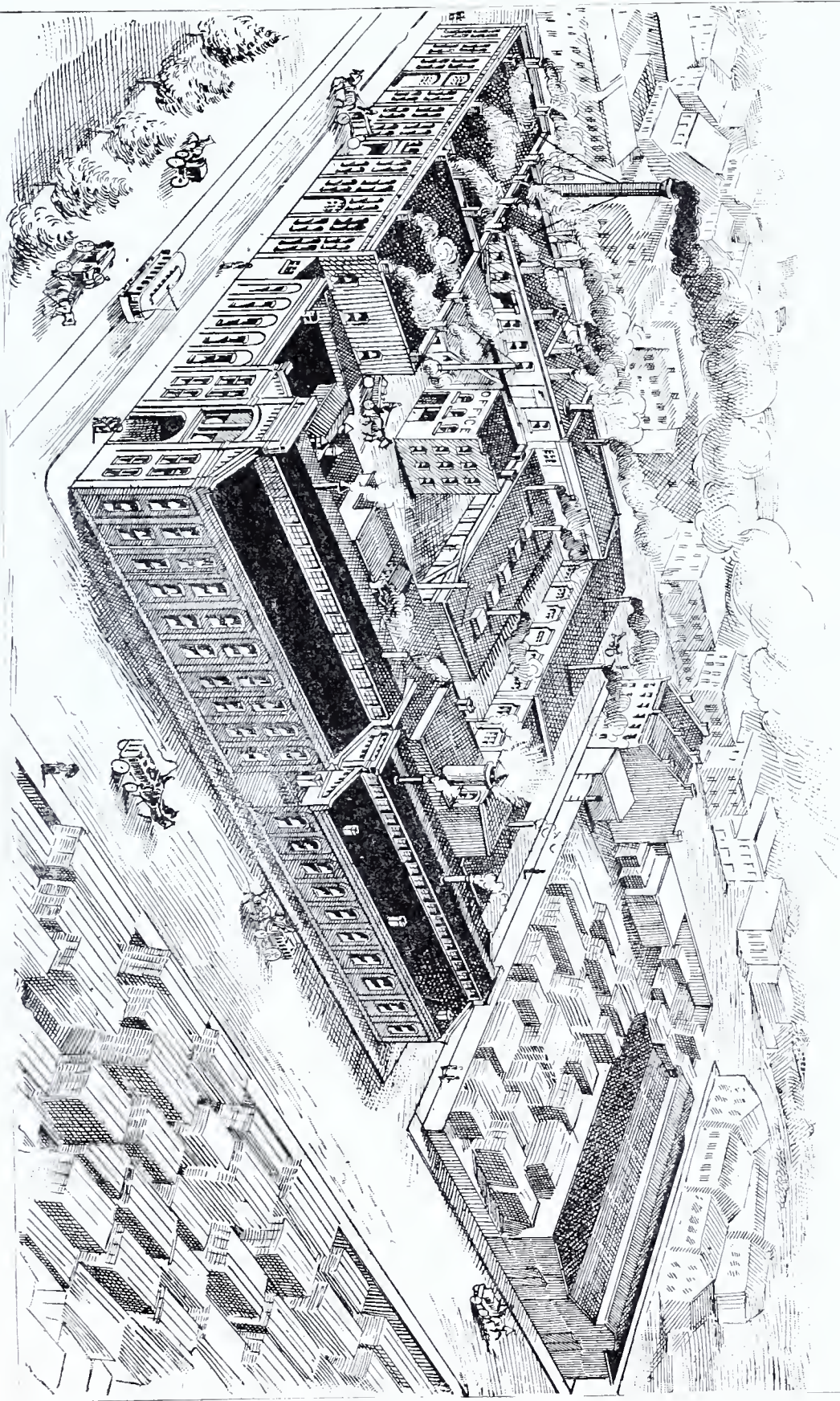
In the line of farming machinery none has been more favorably known than their Power Shuck Corn Shellers, which for years have been the only machines that would successfully shell and husk corn at one operation. In this peculiar feature, as well as other good qualities they possess, this machine has commended itself to the corn growers of other countries, as well as our own.

The cotton gins and cotton presses of this firm are exceedingly popular throughout the entire South, owing to the immense number of improvements included in them, and the great success of the labor-saving devices designed and adopted by the company. These gins are of unequaled design and construction, but improvements are still being made in them, and while they are acknowledged by all to be the most perfect now invented, yet with its progressive ideas the firm is constantly watching for something better, believing that "onward" should be its constant watchword.

In connection with the factory the company operates one of the largest foundries in the West. Here it makes all kinds of castings in addition to doing a general foundry business, and it also manufactures steam engines and boilers complete with shaftings, pulleys and other incidental supplies. The enormous plant is equipped with the highest grade of modern machinery, while skilled mechanics are kept in constant employment producing machinery which defies criticism.

In addition to these skilled artisans the firm has on its pay roll a very large staff of traveling men, as well as an agent in every large city and town in the United States and Mexico. The policy of keeping its new ideas and designs prominently before the public has resulted most advantageously to the firm, which at the present time thinks nothing of shipping bulky machinery to as distant points as the West Indies and Australia. During the half century of its existence no inferior goods have under any circumstances been shipped out, and unsolicited testimonials bearing tribute to the value of the products of the business are received in almost every mail. It is fully recognized that the gentlemen in control of the corporation are sincere in their determination to use only the best materials in all their branches, and the durability of their machinery, as well as its adaptability to the special purposes designed, are eloquent of the success which this honorable policy has resulted in.

Messrs. L. D. Kingsland and E. W. Douglas are the largest stockholders as well as the active managers of the company, and they give it and the various branches connected with it their personal attention, being thus able to guarantee every machine shipped out. The new ideas they have introduced are countless, but each one has proved a success, and they never tire in their determination to give the very best of everything that experience or money can procure.



KINGSLAND & DOUGLAS MANUFACTURING CO.'S FACTORY, ST. LOUIS, MO.

HEINE SAFETY BOILER COMPANY.

TEN years or so ago, when Col. E. D. Meier, of St. Louis, built the first Heine Safety Boiler in this country, it was not so easy to convince men of the merits of the water tube type of boiler as it is to-day, when, in the great majority of large modern power installations, water tube boilers are superseding the old forms. This better boiler practice has been one of the most notable changes of the past decade in the mechanical world. It has been in line with, and partly the result of, the tendency toward higher working steam pressures for compounding and multi-expansion in engine practice. The Heine boiler has grown with the growth of this movement, until now it is one of the best known and most esteemed boilers in the market.

Nothing but steel is used in its construction, and all plates are specially tested at the mills by a well-known inspection firm. Quality of material and workmanship are made chief consideration, as only that trade is catered to which is willing to pay the price of a first-class article. It is this policy which has brought the Heine Company the patronage of such concerns as the Chicago Edison Company, the Pennsylvania Railroad Company, Illinois Steel Company, National Cotton Oil Association, Anheuser-Busch Brewing Association, N. K. Fairbank & Co., and many others of equal influence and standing.

The boiler is designed upon the best of those principles of the action of heat which engineers have now come to understand—which principles, by the way, were but vaguely dreamed of in the philosophy of early boiler builders. The Heine boiler, more, perhaps, than any other, is a living proof of the correctness of the modern theory that *effectiveness* rather than *quantity* of heating surface is the element that makes for economy in steam boilers.

The present company was incorporated in 1884 under the laws of Missouri, and although its local business forms now but a small part of its annual output, the company still considers itself a Missouri institution, and keeps the home office in St. Louis. Branch offices in New York, Pittsburgh and Chicago pay more direct attention to business in their respective territories. The Southern business is handled

largely from New Orleans, an extensive Cuban trade being worked from that point also.

To fill orders promptly, the company finds it desirable to build its boilers in various parts of the country. At the present time, Philadelphia, Albany, Chicago and St. Louis turn out the larger share. New Haven and Pittsburgh build more or less. Boilers for Canadian trade are furnished from Toronto and Montreal, and the Pacific Coast trade is supplied from San Francisco. The boilers built range in size from 50 to 500 horse-power, the average of boilers sold ranging between 200 and 300 horse-power.

The 500-horse-power boiler, ready for shipment, is shown in the accompanying illustration.

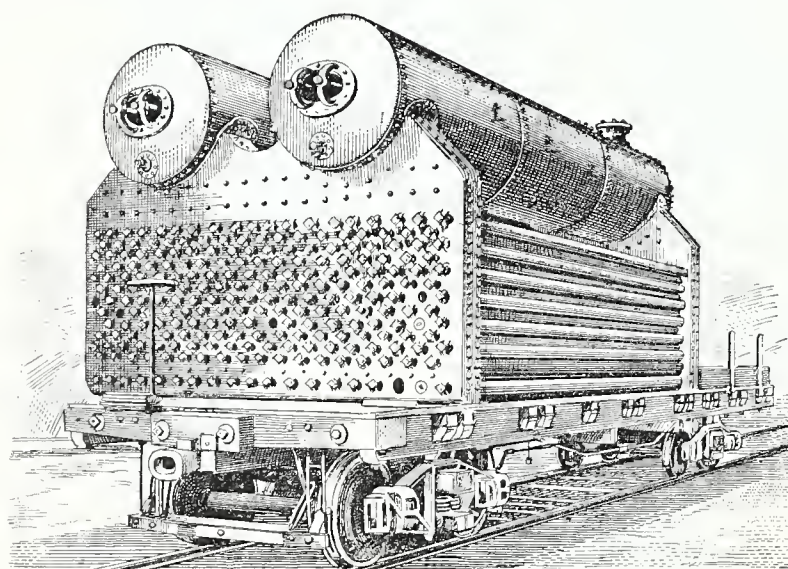
In all Heine boilers a large margin is allowed to admit of forcing beyond the normal rating when occasion requires. Boilers of this 500 horse-power size are in service in Chicago to-day, running day and night, and developing over 750 horse-power each, with good economy of fuel. It is interesting to note that this immense capacity is obtained in a single boiler unit requiring floor space of only 17 ft. 4 in. by 14 ft.

All Heine boilers now built, of

over 200 horse-power capacity, are designed to carry safely 200 pounds working steam pressure if necessary.

There is upwards of 8,000 horse-power in Heine boilers under steam in the World's Fair grounds—eight large boilers in the main boiler plant, four in the "annex," four running the Barre Sliding Railway, and three turning the big Ferris wheel.

It is a good commentary on the mechanical progress of the past fifteen years, that about 1,000 horse-power in old-fashioned horizontal tubular boilers furnished the entire power required at the "Centennial" in Philadelphia, in 1876. The growth of newer and better steam boiler notions has been so rapid of late years that the literature on the subject has not kept pace with the advance. Probably no better text-book of *modern* boiler practice can be found than the catalogue which the Heine Company is glad to send to all interested in the subject.



500 HORSE-POWER HEINE BOILER.

SAWS.

A REFERENCE to the remarks on the Forestry of Missouri on preceding pages will indicate that the largest city in the State is a natural home for the manufacture of saws, sawmill machinery and other appliances needed for converting the products of forests into marketable merchandise. This is emphasized by the fact that what is true in regard to the forests of Missouri is true to an almost equal extent of the great bulk of the Mississippi valley, while the vastness of the virgin forests of the Southern States is too great to need enlarging upon. If St. Louis supplied only the timber regions of the West, Southwest and South, its output in this line would be prodigious, but as all the most important and best-known sawmills of the vast Northwest also come to it for supplies, there is practically no limit to its output, or to the volume of business transacted in this important line of industry.

Their foreman, and quite a large percentage of the workmen, served their apprenticeship with the firm, and, as an ordinary thing, the man who obtains a position with the Branch-Crookes Company retains it the remainder of his life, provided he can convince them, during the first few months of his connection with them, that he is up to their standard.

It is not very remarkable, under these circumstances, that the saws produced at the works, on Broadway, St. Louis, are sought after by experts, and found fully up to every expectation. The works cover nearly half an acre of space and finds constant employment for upwards of sixty skilled workmen, it being one of the largest saw works in the West.

The trade from it is almost exclusively with the best mills in the white pine and yellow pine regions



One of the oldest saw works in America is situated in the northern portion of St. Louis, within sight of the Mississippi river. It is owned and operated by the

BRANCH-CROOKES SAW COMPANY,

the leading spirits of which are Sheffield men, who, in 1849, came to St. Louis, in which city they have been making saws continually since. They brought with them from the great center of cutlery and steel-working in Yorkshire a policy of thoroughness from which they have not deviated, and, as a result, the Branch-Crookes saws are known throughout the United States as the very best that high-priced material and high-classed workmanship can produce.

The company requires high-classed workmanship, and believes in paying liberally for it. The labor problem is one that presents no difficulty, for there has never been a strike or lockout in the establishment during the forty-four years in which they have been in business.

including the Pacific coast. The business has grown with the lumber business of these sections, and nearly all the very large mills use Branch-Crookes saws.

Travelers who visit these sections find that the great lumber kings swear by the trade-mark of the Branch-Crookes Saw Company, whose principle is that if they cannot produce the very best saw made in America, they will make none at all.

The specialties of the house are circular, gang, and band saws, which are produced in large quantities and on the most scientific principles possible.

The president of the company, Mr. J. W. Branch, has made the quality and peculiarities of steel and saws a life-study, and he insists on common sense principles and never-remitting care in every department.

The saws are subjected to the most severe tests before being shipped, and everything is sold under the most rigid guarantee, with reasonably fair usage; the guarantee is, however, entirely unnecessary, as every saw is known to the house to be fully up to every requirement to which it can be put.

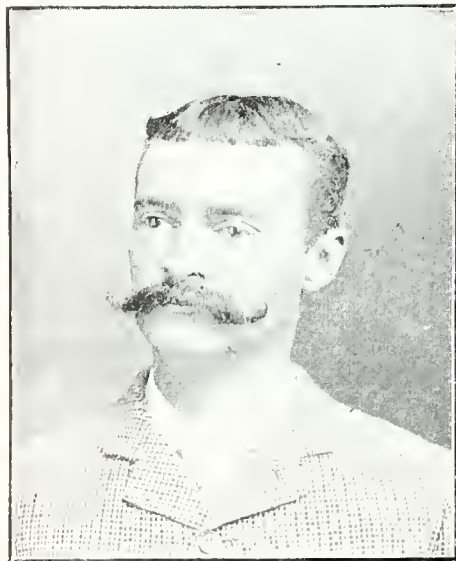
BAGS.

ONE of the most prominent establishments in the United States in the Manufacture, Importing and dealing in Bags of all Kinds is that of Messrs. H. & L. Chase, of St. Louis, Mo., and of Boston, Mass. This firm, which has established for itself an enviable reputation in almost every State and Territory in the country, has been in existence with slight modifications in its firm name for almost half a century, and is the oldest bag house on the continent. Mr. Henry S. Chase, of Boston, established the business and had associated with him at various times his brothers, Mr. Thomas Chase and Mr. H. Lincoln Chase. The house had acquired quite a standing and reputation when the civil war broke out, and this event stimulated the business in many sections and so increased values that the firm very largely increased its operations.

Just at the close of the war, in 1866, the St. Louis branch of the business was established and placed

under the management of Mr. F. H. Ludington.

This gentleman had a full knowledge of the details of the business, and so successful was his work that he has, for several years, had the entire control of the vast and varied interests of the establishment in the West.



WM. L. CHASE.

Col. Wm. L. Chase, son of the original founder of the house, has his headquarters in Boston, and

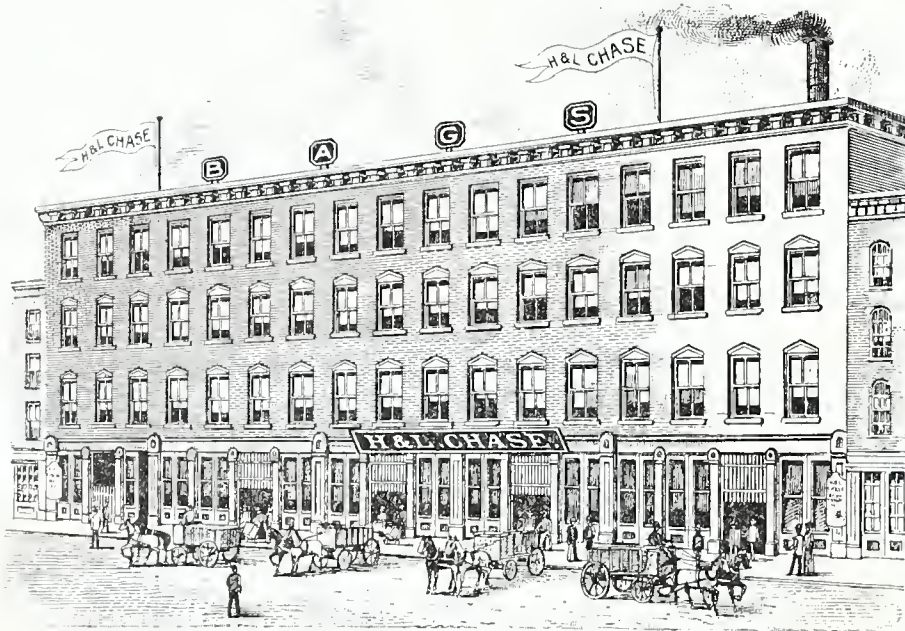
gives his personal attention to the numerous details, including finance and importing, inseparable from a house of this magnitude.

The firm is now composed of the two gentlemen named. Mr. William L. Chase, of Boston, and Mr. F. H. Ludington, of St. Louis, each of whom occupies a foremost position in the commercial and financial world of the city in which he is located. Their personal integrity is reflected in the transactions of the house, which enjoys a reputation for fair dealing, as well as for the excellency of its specialties, in

every section in which it has correspondents and customers.

When it is stated that the demands not only of the Eastern seaboard, but also of the great Mississippi and Ohio valleys have to be met by this house, it will be realized how heavy are its transactions and how great its responsibilities. The specialties of Messrs. H. & L. Chase are Cotton and Jute Bags for grain, flour, meal, meats, minerals, salt, wool, coal, plaster, ore, and, indeed, all products usually packed and shipped in bags. Its facilities are unsurpassed for Printing Brands on bags, for both the home and export trade, and as its designing and engraving

departments are absolutely complete, it represents quite a community of interest within itself.



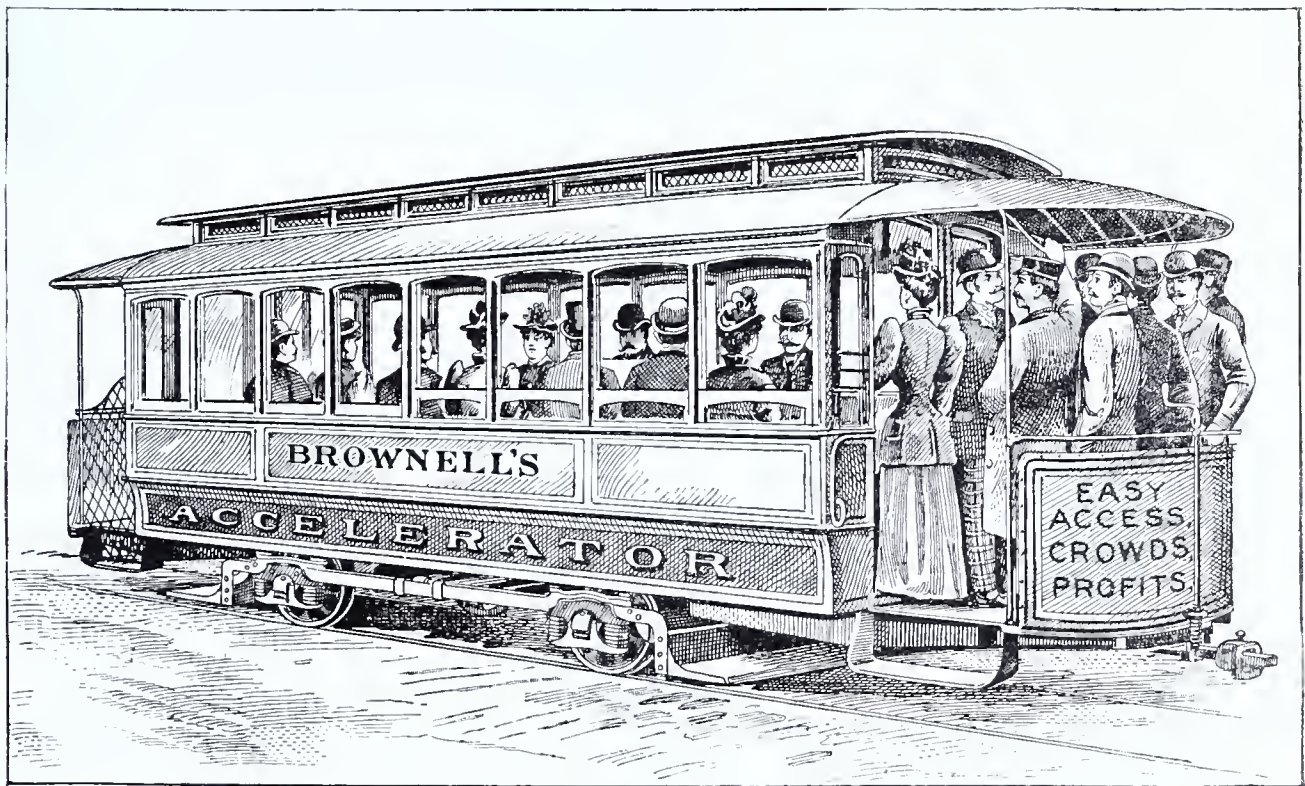
F. H. LUDINGTON.

THE BROWNELL CAR CO.

MORE street cars are built in Missouri than in any other State, and St. Louis is the center of the industry. The Brownell Car Company, of St. Louis, is the pioneer establishment of its kind in the State as well as in the West. Missouri being the best hardwood market in the world makes it an exceptionally suitable State for car manufacturing, and Mr. Andrew Wight recognized this when, in 1858, he established a car factory in St. Louis, which, in 1875, was incorporated under the name of the Andrew Wight Company, with the founder as president, Mr. F. B. Brownell as vice-president. In 1881, the company name was changed to the Brownell & Wight Car Company, with Mr. Brownell as presi-

dent, and in 1891 the present name was adopted, with Mr. Brownell as president and Mr. M. B. Richardson as secretary and treasurer.

Into all these cities, as well as into others still more distant, the company has introduced its Accelerator car, invented and patented by Mr. F. B. Brownell, and destined to become the street car of the future. The specialty of the Accelerator is the ease with which passengers can enter and leave a crowded car. The testimony of street railroad men generally throughout the country bears out the statement that the Accelerator is so great an improvement on the ordinary car that nine of them will do the work of ten. The platforms are slightly larger than in the old type, and the patent arrangement of the doors enables the car to be filled and emptied very much more rapidly. Experience has proved that passengers insist



The original plant occupied a floor space of 2,800 square feet, while the present plant requires a space of 76,200 feet and finds employment for 200 skilled workmen. This magnificent growth has been the result of the careful study of the requirements of the street railroad world, and the production of cars of the most approved type. During the last thirty years repeated efforts have been made in other western cities to establish car manufacturing on a large scale, but without great success, although the Brownell Car Company have constantly increased their output and territory. They have shipped cars to all the leading cities of the United States, Canada and Mexico, and at the present time they are engaged in executing exceptionally large orders for the street railroads of Brooklyn, Cincinnati, Baltimore, Chicago and Detroit.

on riding on platforms, no matter what rules may be made to the contrary, and the Accelerator is so constructed that all objections to their doing so are removed.

So obvious has this fact become that the Accelerator type of car is being adopted generally on nearly all the large roads in the country.

The general manager of the Twenty-third Street Railroad Company, of New York, having been induced to try the cars of this company, states that he has found the Brownell Car Co. type, the most popular ever introduced.

President Yerkes, of Chicago, one of the most prominent street railroad men in the country, says the Accelerator is "a decided improvement on the usual style, and it is a wonder to me that in the many years of business experience none of us have struck on the plan before. We can save eight minutes on a trip of one hour and twelve minutes by using the car made with your patent doors."

SMITH & DAVIS MANUFACTURING COMPANY.

ST. LOUIS was selected as the place for holding the Convention of the National Furniture Manufacturers' Association, this year, principally on account of its prominence as a furniture manufacturing center, and the large and high-class establishments catering to that industry.

Among the large houses which make a specialty of various articles used in the furniture trade, the Smith & Davis Manufacturing Company is exceptionally prominent. This house was established in 1871, incorporated in 1882, and its present officers are J. G. Smith, president; H. N. Davis, secretary; F. W. Shryock, vice-president; J. H. Kentnor, treasurer; B. H. Jones, superintendent.

The specialties manufactured by this company consist of all the standard varieties of Spring, Wire and Iron Beds, Cots of all kinds and Woven-Wire Cribs. This firm also makes a large line of Hospital Furniture, and in a



It requires two hundred hands to produce the output of this company at the present time, and it is expected in a short time to employ double this force in order to keep up with the rapid growth of the business.

This house makes a specialty of well-made goods, and it has the reputation throughout the country of producing the best Steel-Wire Mattress ever made in the United States. This wire bed is known as the No. 27, and is sold by nearly every furniture dealer in the United States. The line of Woven-Wire Mattresses is also a specialty of this company, and with its increased facilities the output is now three times more than a year ago.

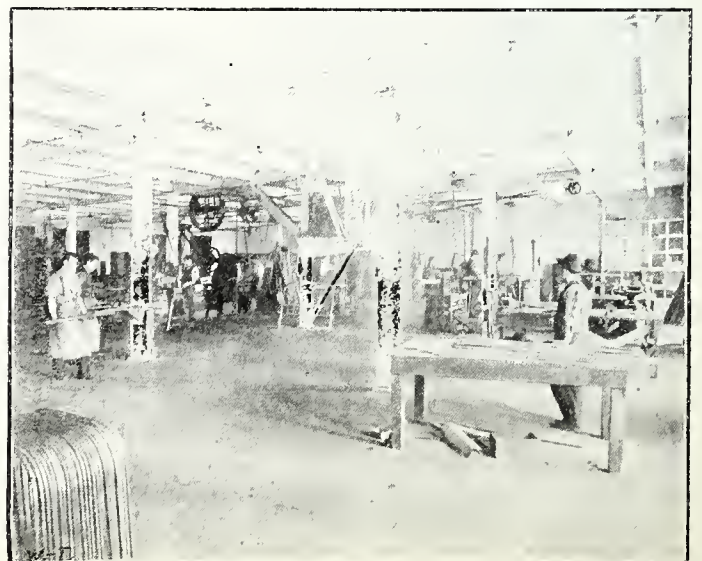
Iron bedsteads are now used in all public and private institutions, schools, colleges and also in private homes. This firm has held for many years the front rank in this department of furniture.

Brass bedsteads will soon be added as a new department by this company, as a growing demand warrants the manufacture of this article in the West.



short time will add to its business a full line of Brass Bedsteads.

During the year 1892, this company erected a building on the corner of Twentieth street and Lucas place, fronting on Lucas place 119 feet; on Twentieth street 155 feet, and on St. Charles street 119 feet. The building is six stories and basement high, and contains 125,000 feet of floor space. The building is built on the slow combustion plan, and one portion, in which the painting, varnishing and japanning is done is absolutely fireproof. The building is supplied with three large elevators, and is equipped with the very best machinery, both steam and electric; it is heated with hot air in connection with an exhaust fan, and the system of automatic sprinklers for the prevention of fire is the most perfect that can be found in this country. The building cost upwards of \$100,000, and the capital employed in the business is twice this amount.



WOODENWARE—CUPPLES STATION.

WE present on this page an illustration of the celebrated group of buildings known as Cupples Station. These are unique in that they are the only buildings in the world in connection with which is operated a union freight station. The tenants of these buildings make and receive all of their railroad shipments, from a carload to a single small package, on the premises, avoiding the expense and delay incidental to the carting of goods to and from the depots.

Cupples Station is situated in the very center of the business district of the city, which is at the

tures and sells, woodenware comprises a very small part of the business. They have grouped together a large variety of goods generally sold by wholesale grocers, consisting of wooden and willow-ware of every kind, cordage, twines, wrapping-paper, paper bags, brooms, brushes, glass bottles, flasks and fruit jars, cooperage, matches, axle grease, and a large variety of other goods too numerous to mention.

Their factories are located at different points throughout the country, with a view to producing each article to the best advantage. While the great



mouth of the Terminal Association's tunnel, where all the railroads of the city form a junction. From an economic and engineering standpoint, there is no building or group of buildings in the United States better worth a visit than these.

The Samuel Cupples Woodenware Company occupy a large part of the premises, and are well known as one of the great mercantile institutions of the world. This business was established in 1851, and while it still retains the word woodenware as an index to the character of goods which it manufac-

mass of the business is handled from the above-mentioned warehouse with its unequaled facilities, yet carload shipments are frequently made from the factories direct to the buyers.

There is scarcely a wholesale grocer or wholesale hardware house in the United States that does not purchase from this well-known concern.

It would be well worth the time and expense of any visitor at the World's Fair to go to St. Louis for a view of Cupples Station and the Samuel Cupples Woodenware Company's mammoth establishment.

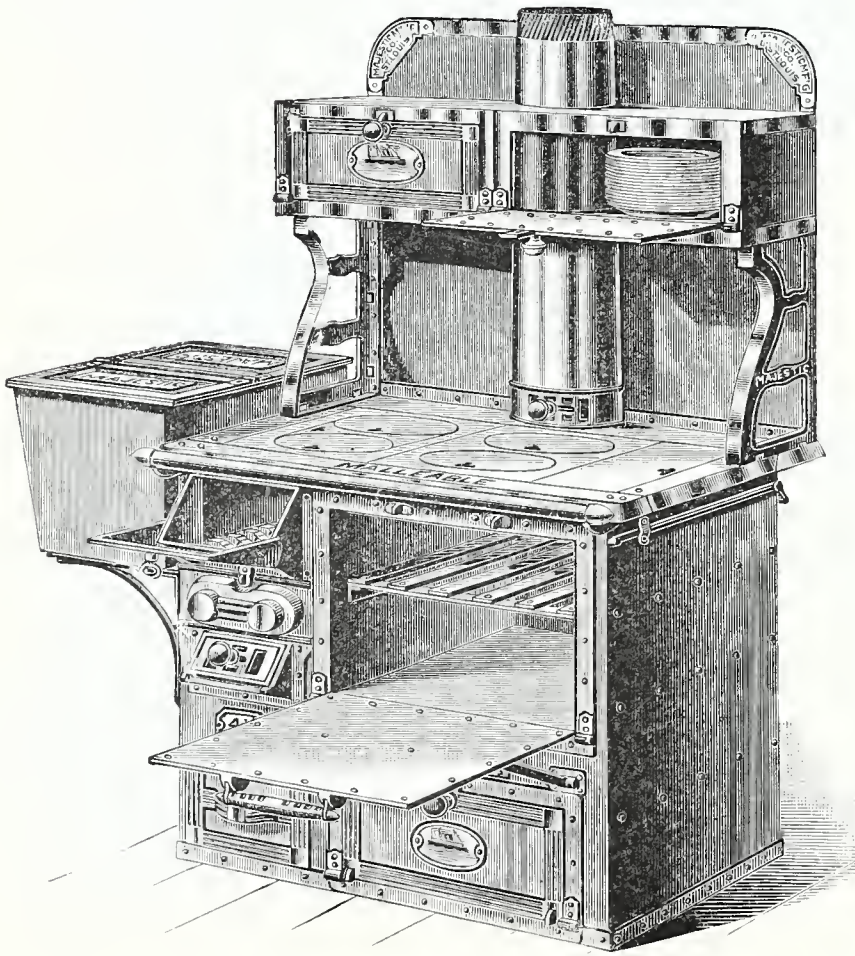
STOVES AND RANGES.

THE stove and range industry of Missouri is one of the most important in the State, and the MAJESTIC MANUFACTURING CO.

is one of the leading establishments in this line. It manufactures Majestic steel and malleable iron ranges and its ambition is to build a range which, in lasting qualities, is superior to any other. The large and constantly increasing sales in all parts of the United States show that in the opinion of the purchasing public the high ideal which the Company set out to

firm uses only the very best materials in every line and does not pretend to economize in any detail which could possibly impair the value of the ranges. At the same time a full knowledge of the business, gathered from immense experience, enables the house to produce a range of the highest possible grade and similar to the one illustrated on this page at a cost of less than fifty dollars in any part of the country where the freight is not excessive. It is impossible to compete with this price without impairing the material and the lasting qualities of the goods, and

hence the Majestic is gaining friends every day, and is being called for from all points of the compass. The entire business of the company is transacted on a cash basis, which is one of the reasons why it is able to make low prices for first-class ranges. Country dealers are able to extend the usual courtesies by way of reasonable time to intending purchasers, but the Majestic Company generally is not a long-time house, and is able to confine its operations to a cash business. Its agents are exclusively responsible dealers in the different States and cities, and it occupies in the manufacturing and financial world, the highest possible



THE MAJESTIC.

attain has been reached, and that the efforts to produce a range which cannot be beaten in any respect have been successful. The Company uses only the heaviest grade of cold rolled steel to form the body and ovens. The rim of the entire top, the feed doors, draft doors, ash pan doors, warming closet doors and all the frames belonging to same are made of malleable iron, which material is also used exclusively in the damper and all attachments.

The Majestic Manufacturing Company's factory is one of the largest range factories in the world, and it cannot be beaten for completeness of equipment and labor-saving and cost-reducing devices. The

ble standing. The Majestic factory is situated on Morgan street, St. Louis, just west of Twentieth street, and is one of the attractions to visitors who have any interest in mechanical and manufacturing ingenuity and progress.

The factory from which the company draws its supplies in the shape of steel, and malleable and gray iron, was erected at a cost of over \$1,500,000, and every grade of material is of the highest possible character. The Majestic range is quite a St. Louis enterprise and can be found in every State doing business with Missouri and its great manufacturing cities.

EXCELSIOR MANUFACTURING COMPANY.

THE Excelsior Manufacturing Company is one of those mammoth industrial institutions of which St. Louis is so justly proud. It was established nearly half a century ago by Mr. Giles F. Filley, who is still its president. The company's first offices were located on Main street, just north of Washington avenue.

The perfect work of the Charter Oak made its fame resound through every part of the country. As a result, the influx of orders was surprising, and more stoves were needed to supply the demand than the factory could produce, and it was decided to enlarge the manufacturing plant. Two entire city blocks, covering nearly five acres, were accordingly purchased in that portion of North St. Louis contiguous to the

which this store is constructed is to insure the most perfect working and most lasting qualities with the least possible fuel. A striking feature is its wire gauze oven door. The advantages of this door are numerous. It allows the fresh air to enter the oven in the form of jets and diffuse itself before cooling the oven; thus making a perfect chemical change, saving time, effecting a great saving in fuel, and, above all, producing healthier bread and more tender meat than any other appurtenance ever attached to a stove.

In addition to the wire gauze oven door the Charter Oak stoves have a new *hot water* center, and all other substantial modern improvements, being carefully constructed by the most skilled workmen. They are made in all sizes, from the smallest grade

to the magnificent *Hotel Charter Oaks*, the largest and heaviest cast-iron cooking apparatus in the world. The universal success and satisfaction that attended the sale of these stoves and ranges justify the company's motto: "41 years in the lead and still there." The fame of the "Charter Oak" stove has been sung in almost every part of the civilized



R. R. tracks, and bounded by Main, Lewis, Florida and Smith streets. On this was built the colossal plant illustrated on this page. It comprises half a dozen large buildings, which have a total floor space of over 160,000 square feet, distributed thus:

Moulding department.....	60,337
Warehouse department.....	58,594
Shipping department.....	10,615
Carpenter shop.....	9,280
Mounting department.....	21,491

In this mammoth factory 500 hands are employed in stove-making, and \$600,000 worth of stoves and ranges are made by them every year. These include a large line of first-class, medium, and low-priced cooking and heating stoves, laundry and tailors' stoves, farmers' boilers and hollowware. But the prize products of the house are their "Charter Oak" stoves and ranges. The general economic principle on

world. The firm has shipped goods to British Columbia, Mexico, Canada, and even Cuba. Moreover, it has sent consignments to Alaska, Japan, China, Brazil and other countries in South America, Germany, England, and even to Africa. They are shipping to all parts of the United States every day, and in the State of Missouri itself, half the families have a Charter Oak range.

The company is incorporated for \$750,000, with Mr. Giles F. Filley, president; Charles H. Filley, vice-president; Robert E. Filley, treasurer; G. D. Dana, secretary; L. D. Vogel, assistant secretary, and T. A. Hammond, assistant treasurer. Messrs. Charles H. and Robert E. Filley are sons of the president, while the other officers have worked themselves up from minor positions. Their present offices and sales-rooms are located in the fine large five-story building, Nos. 612, 614, 616 and 618 N. Main street, just north of the bridge and on the site of the company's first offices.

TOBACCO.

MISSOURI may well be proud of her tobacco manufacturing interests, as she ranks first among all competitors in this respect; and St. Louis enjoys the unique distinction of manufacturing more tobacco than any other city in the world.

Occupying a most prominent position among the tobacco manufactories of St. Louis, is the

DRUMMOND TOBACCO COMPANY,

whose factory buildings are conceded to be the finest and best equipped in the country.

In order to give our readers a conception of the immensity of this enterprise, we will state that their plant covers an entire city block and consists of the following buildings: Two large factories, having a floor area of 172,000 square feet, in which all of their product is manufactured; two commodious warehouses for the storage of leaf tobacco in hogsheads, licorice, sugar, and other materials used in the manufacture of plug chewing tobacco; one re-drying house for the re-handling of leaf tobacco; and one boiler house, which is located some fifty feet from the other buildings, and is fireproof throughout. The offices are located on the first floor of the main factory building, and are beautifully finished in hard wood.

A brief history of the inception and marvelous growth of this company, will be found exceedingly interesting.

About thirty years ago, in the city of Alton, Ill., Mr. James T. Drummond, noting the growing tendency of all mankind to become "lovers of the weed," embarked in the enterprise of manufacturing plug chewing tobaccos. His knowledge of tobacco, acquired from many years' experience in cultivating and curing it, and his skill in preparing it in such a manner as to make a "savory morsel" to those accustomed to or desiring the pleasures of this choice indulgence, soon gained for him a reputation as a tobacco manufacturer, and his product was eagerly sought after by merchants in all parts of the country.

The volume of business increased so rapidly that within a few years the capacity of the small factory that had given birth to his now celebrated brands, was overtaxed, and it became necessary to build an additional factory to supply the increasing demand.

St. Louis was selected as the site for the new factory, which, together with the old one at Alton, was thought to be ample for years to come; but he and his associates in business were agreeably surprised to find that their most sanguine expectations had been surpassed, and it again became necessary to seek new and more commodious quarters.

Their business having assumed such vast proportions, it was thought best to build one immense establishment, equip it throughout with all the modern machinery and appliances obtainable, and abandon the two factories then in operation. An entire city block was purchased, and a most splendid and spacious factory was erected, together with other buildings necessary to carry on the business, and for seven years they were enabled to supply the enormous demand for their tobaccos without inconvenience;

but last year (1892) the volume of business increased so materially over that of former years, that it again became necessary to increase their capacity, and a seven story additional factory was built, giving them a capacity of 100,000 pounds of plug tobacco daily, thus enabling them to supply the increased



OFFICE AND FACTORY BUILDINGS OF DRUMMOND TOBACCO CO.

and ever-increasing demand without subjecting their customers to the annoyance and inconvenience of delays in filling orders for their popular brands, chief among which are Horse Shoe, Natural Leaf, Fish Hook and J. T., which are sold extensively in every State and Territory in the United States. Shipments (in bond) are also made to Mexico, Central America, England and British America, and arrangements have just been completed for representation in Australia, New Zealand, China, Japan, India and South Africa.

The Drummond Tobacco Company is a corporation under the State laws of Missouri, with a paid-up capital of \$1,000,000.

They give employment to over one thousand persons, distributing about \$600,000 per annum in wages.

Such phenomenal success comes not unmerited, and the foregoing is a graphic picture, portraying what untiring energy, undaunted courage, honorable methods, keen foresight, and scrupulous care in regard to minute details, will achieve.

THE BREWERIES OF ST. LOUIS.

ST. LOUIS is in the front rank as a beer-producing city, and some idea of the volume of its business may be gathered from the fact that in 1892 nearly 61,000,000 gallons of beer, valued at \$12,000,000, were made in the city breweries and sold to the trade. Of this, upwards of a quarter million gallons were exported, and of the remainder quite a large portion was used in the city, while millions of gallons were shipped to leading distributing points of the North, South, East and West. St. Louis beer has the reputation of being the most wholesome and reliable that is made, and this is owing to the great care exercised in the production, and the excellent management, which is the prevailing feature of the enormous establishments, which include the largest and by far the best equipped brewery in the world.

The census returns for 1890 indicated very clearly the growth in this interest during the ten years just passed. In 1880, the capital involved was returned at \$4,000,000, while in 1890 the capital was found to be within a few thousands of \$16,000,000. The number of persons employed in the work increased from 1,200 to 2,800, while the amount of wages paid showed a still more marked increase, jumping from \$600,000 to \$2,250,000. The value of materials used increased from \$2,500,000 to upwards of \$6,000,000, and the value of the product from \$4,500,000 to upwards of \$16,000,000.

During the last fifteen or sixteen years, the output of malt liquors has increased more than fourfold, as will be seen from the following table, which shows the amount of the business yearly since 1877:

Year.	Barrels.	Gallons.
1877	471,232.....	14,608,192
1878	521,684.....	16,172,204
1879	613,667.....	19,023,677
1880	828,072.....	25,670,232
1881	959,236.....	29,739,313
1882	1,069,715.....	33,661,165
1883	1,100,000.....	34,100,000
1884	1,122,265.....	34,790,215
1885	1,086,032.....	33,666,992
1886	1,280,091.....	39,682,821
1887	1,383,361.....	43,575,872
1888	1,482,883.....	46,710,815
1889	1,546,587.....	48,717,490
1890	1,856,883.....	58,498,114
1891	1,810,812.....	56,135,172
1892	1,961,449.....	60,814,919

Visitors to the World's Fair from Europe will derive a special interest from visiting St. Louis and its enormous breweries, from the fact that a large number of these institutions are now owned by a syndicate composed of English capitalists. The great success of the breweries attracted attention in London, and some five years ago efforts were made to buy up all the breweries in the city and consolidate them in one gigantic enterprise. There was no lack of English gold to back up the proposition, and but for the firmness of the owners of one or two of the largest and best-known establishments, the deal would have been consummated. As it was, a large percentage of the breweries passed into English control and have remained so since. Comparatively few

changes have been made in the management, and the breweries are still known generally by their old names, which are those of the men who made them the success they now are.

During the last half century the output of St. Louis beer has increased over fortyfold, and the State of Missouri now produces upwards of 2,000,000 barrels per year. New York State boasts of a larger total, but the breweries, instead of being almost entirely in one city, are spread over quite a large area, and the comparison is scarcely just. There are four other States which compete with Missouri for first position in this line of industry, and these are Illinois, Ohio, Wisconsin and Pennsylvania. Missouri is holding its own well against all opponents and now produces more beer than was brewed in the entire United States prior to the war. The introduction of refrigerator cars and the perfecting of ice-making machinery have led to a complete revolution in brewery methods, and while these improvements have enabled St. Louis to ship beer to heated districts which were practically inaccessible before, they have also encouraged the erection of breweries in those districts, and in many of these enterprises St. Louis capital is largely interested.

It may be said that there are twenty or twenty-five large breweries in St. Louis. The most prominent of these are the Anheuser-Busch and Lemp establishments, both of which have a worldwide reputation, and which are described and illustrated on subsequent pages. The English syndicate already referred to owns and controls about fifteen breweries, and during the last three or four years there have been constructed several smaller breweries, whose output is constantly increasing, and which are destined in the early future to take rank with some of the older establishments in which the managers learned the art of beer brewing and the preparation of malt liquors.

The breweries are situated for the most part in the southern portion of the city, a very large proportion of the inhabitants in some of the southern wards earning their livelihood wholly or in great part through these colossal manufacturing concerns. It is probable that no industry has given St. Louis more notoriety of a desirable character throughout the country than the one under notice, and the indications are that for many years to come the city will more than maintain its supremacy in this regard.

While the brewery interests of St. Louis are so large that they entirely overshadow those of the remainder of the State, quite a large quantity of beer is manufactured in other cities, and notably in Kansas City. The last official report of the trade and commerce of Kansas City states that there are seven houses engaged in the industry, with an aggregate capital of \$526,000. They carry stock aggregating \$133,000, and the sales per year were \$1,239,000. Important deals have found an advance in freight rates an impediment to their business, but the trade has been extending to the West and Southwest.

THE ANHEUSER-BUSCH BREWING ASSOCIATION.

MISSOURI has several institutions and establishments which have earned for it a reputation extending far beyond American shores, and the most prominent among these is the Anheuser-Busch Brewing Association, of St. Louis, and its colossal plant. The largest brewery in the world, this establishment is justly regarded with pride by Missourians everywhere. It covers forty-five city blocks, and is in itself quite a city. Although it is the growth of time and the result of a large number of additions and improvements, the Anheuser-Busch Brewery is a collection of buildings which are not only handsome, but which have claims to architectural excellence in a variety of ways. Situated in the southern part of St. Louis, this mammoth establishment has splendid shipping facilities, and has solved more problems in brewing than any other house in the world.

One of its greatest triumphs was compelling the railroads to recognize beer as a food product. Formerly, beer was carried as first-class freight, at rates equal to those charged for looking-glasses and works of art, and the Anheuser-Busch Company set themselves to work, and never rested in their efforts until the companies agreed to carry the product at the same rate as food products generally. It also was the first company to construct refrigerator cars for the shipment of beer, and right in the same line of advance it was also the first company to construct brewery ice houses and thus make it possible to both make beer in the South and ship it to the hottest climates. Prior to this time a very small proportion of beer shipped into hot districts arrived in a condition fit to be consumed, but now Southerners are as easily accommodated as those who have made their homes in colder climes.

Enterprise of this kind had the natural influence on the business of this magnificent financial institution, and to-day the Anheuser-Busch Brewery Association exports a larger quantity of beer than all the other breweries in the United States combined. It ships regularly to Mexico, the West Indies, Central America, Brazil, the Sandwich Islands, Australia, Japan, China, and, indeed, to nearly every country, no matter how distant it may be, and it is a significant fact that wherever its specialties gain a foothold, they are in constant and never-ceasing demand.

The company has branch houses and agencies in New York, Boston, Philadelphia, Pittsburgh, New Orleans, Kansas City, Denver, St. Paul, Baltimore, Washington, Omaha, San Antonio, Dallas, and in several smaller towns, the number of its resident agents being 500. It keeps an army of four thousand men constantly employed, and it owns sufficient rolling stock to equip an average-sized railroad. Thousands of visitors are shown through the great network of buildings every year, a number of guides being retained for the purpose, and every possible courtesy being shown to guests. Visitors to the World's Fair from all parts of the world will find it well worth their while to visit this brewery before returning

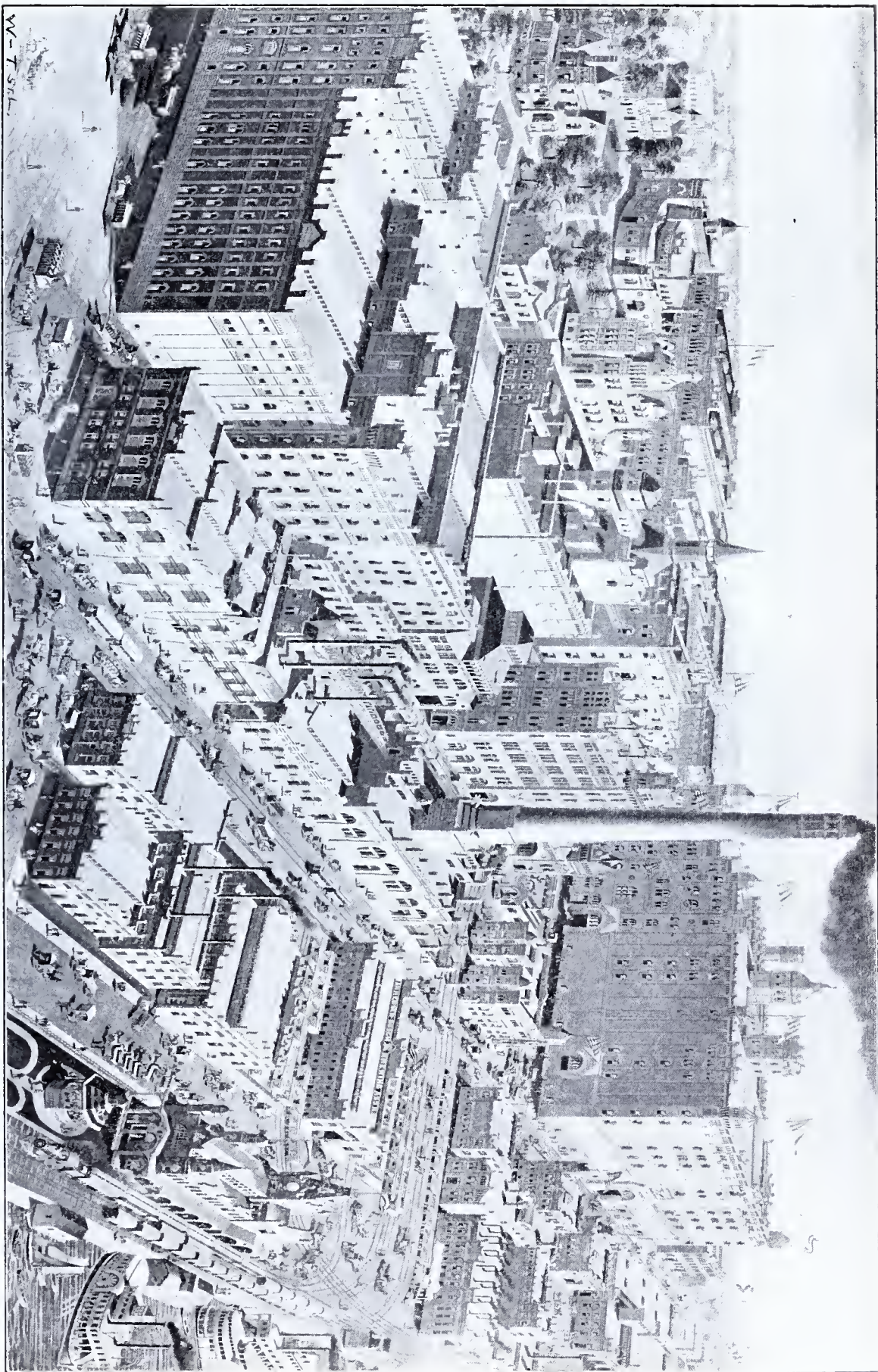
home, in order that they may acquire and take away with them knowledge concerning an institution of whose vastness no pen sketch can possibly convey adequate description. Only the very best brews are shipped out from this establishment and the Anheuser-Busch beer has attained so much fame that there is scarcely a household in the United States where it is not to be found and appreciated.

The total malting capacity exceeds 2,000,000 bushels per annum. The annual shipping capacity is about 100,000,000 bottles and 1,000,000 barrels. The brewing capacity is 6,000 barrels every twenty-four hours, and every day 12,000 bushels of malt and 7,500 pounds of hops are used. No corn or corn preparations are used by the Anheuser-Busch people, who were the first to manufacture bottled beer for exporting by the Pasteurizing process and who have built up their business so rapidly that they now ship out a larger quantity of beer than the two great Burton breweries combined.

Every variety of beer from very pale and light brewings to dark and heavy beer are included, and the most popular brands are the "Anheuser-Busch Standard," the "Original Budweiser," the "Pale Lager," the "Pilsener or Exquisite," the "Old Burgundy," and the "Faust Beer." The immense shipping business of this company, and especially the manner in which it has educated Americans into purchasing bottled beer of home brewing in preference to that imported from Europe, has resulted most advantageously for the country, millions of dollars which were formerly sent abroad being now kept at home.

As to the future of the Anheuser-Busch Brewing Association under the uniquely able presidency of Mr. Adolphus Busch, no prophet would be daring enough to write. Its history is a most interesting one. The association was founded by Mr. Eberhard Anheuser, who was born in Prussia in 1805. He came to America in 1842, and, purchasing the Bavarian Brewery, commenced to build up the concern which is now the admiration of English and German-speaking races throughout the world. In 1865, the son-in-law, Mr. Adolphus Busch, became associated in the business, and seven years later the bottling of beer for export on a large scale was commenced. In 1875, a stock company was formed with the honored name still retained, and on the death of Mr. Anheuser, in 1880, Mr. Busch became president and manager of the gigantic corporation. Under his management the onward strides have been rapid in the extreme, with a result which is only feebly expressed on this page.

On the next page is a bird's-eye view of the buildings of the Anheuser-Busch Brewing Association. They only give an outline and an idea of the massiveness of what is best described as a colony of buildings. A fair conception of what these buildings really are, as well as of their beauty and magnitude, can only be gathered by a visit to them.



ANHEUSER-BUSCH BREWING ASSOCIATION, ST. LOUIS, MO.

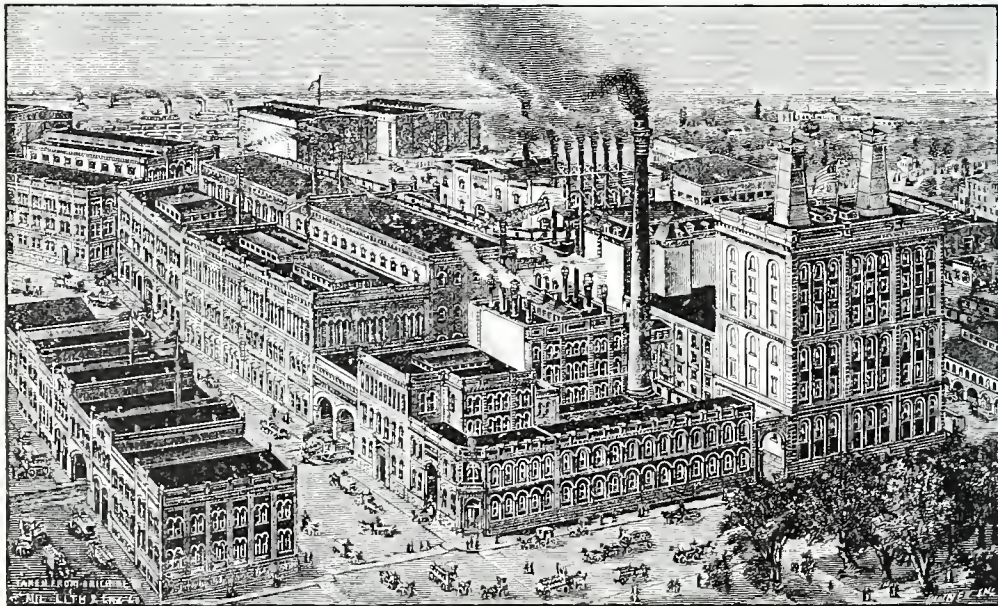
WM. J. LEMP BREWING COMPANY.

IN 1840, Mr. Adam Lemp, who had come from Germany to the United States, established a small brewery on Second street, between Walnut and Elm, St. Louis. It was here where the son of Mr. Adam Lemp, Wm. J., learned the art of brewing under his father's supervision, who, a practical brewer himself, made the son familiar with all the numerous and complicated details of the trade, and who soon became so thoroughly efficient in his profession, that after a few years of apprenticeship, he advanced to the position of foreman in his father's establishment.

In 1862, upon the death of Mr. Adam Lemp, the business passed into the hands of his son, and he at once selected a site for his new brewery, the old one on Second street having become entirely too small to satisfy the demands of the increasing trade. Since then the growth of the business has been marvelous. Buildings have been added as demanded, modern

700 men are employed, over 100 horses are used, and more than 40 wagons are required in the delivery of beer. Shipments are made to all parts of the United States, Canada, British Columbia, Mexico, Central and South America, Hawaiian Islands, Australia, and the City of London, England. The immense shipping yards, which cover six entire city blocks, are within easy reach of the main establishment, and accessible both by rail and water, being connected by numerous switches with the tracks of the St. Louis, Iron Mountain & Southern R. R. on one side, and abutting on the Mississippi River on the other.

The Western Cable Railway, an offspring of the brewery closely allied thereto, connects the shipping yards with the brewery premises, thus enabling the Lemp Brewing Company to load its product direct from the storage cellars into the cars, and to distribute it in first-class condition to all points of the United



machinery has been introduced, and the establishment is now of mammoth proportions, and perfect in its equipment. Its brewing capacity is 500,000 barrels of beer per annum, and in its entirety it represents an expenditure of four million dollars.

Three squares are occupied, the main buildings being seven to eight stories, including besides the brew, malt and stock houses and general offices, the complete and elaborate bottling department, with a capacity of 100,000 bottles daily. The annual output of the brewery exceeds 300,000 barrels of beer, and the total amount of sales aggregates over \$3,000,000.

One of the newly-erected buildings contains five of the most modern refrigerating machines and an electric light plant, the former having a capacity equivalent to 700 tons of ice daily, whereby the cellars are kept at a uniform temperature of 31 to 32 degrees F. In addition, the ice plant turns out 150 tons daily.

For the transportation of the beer some 500 refrigerator cars are in constant service, and the number of cars sent out during last year was about 10,000.

States without ever breaking bulk, a feature so very essential in the shipping of the amber liquid.

The product is brewed in accordance with the most approved process, from the best quality of malt and hops, and its superiority has been endorsed by a demand remarkable in its growth.

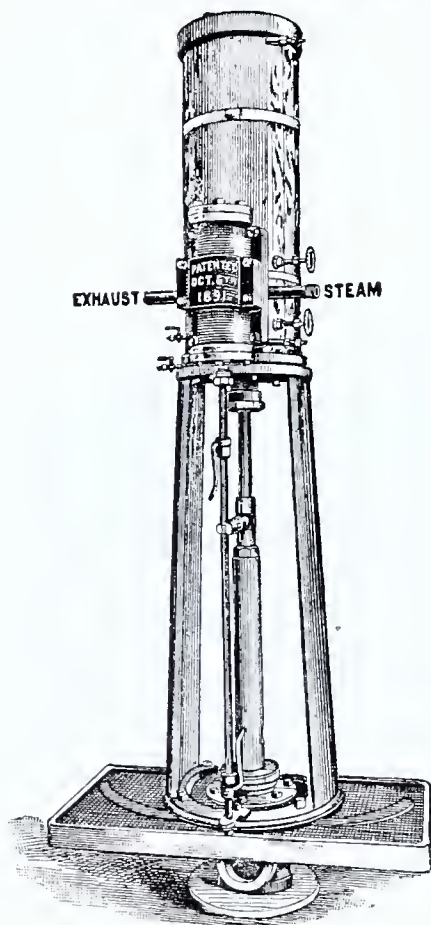
On November 1st, 1892, the Wm. J. Lemp Brewery, known as the Western Brewery, was incorporated under the title Wm. J. Lemp Brewing Company. At the election held on that day by the stockholders of the company, the following officers were chosen for the first year, to-wit: Mr. Wm. J. Lemp, president; Mr. Wm. J. Lemp, Jr., vice-president; Mr. Louis F. Lemp, superintendent; Mr. Henry Vahlkamp, secretary.

The sons of Mr. Wm. J. Lemp have entered into the business with all the ambition and ardor of youth, and will be worthy successors to the business established over half a century ago by their grandfather and which was placed upon a solid footing and increased to its present gigantic proportions under the careful management of their father.

THE COOK WELL COMPANY.

ST. LOUIS is exceptionally well located for the distribution of machinery needed in mining, well digging and similar work, and it has in consequence become the home of a large number of establishments making specialties in this line. Among these may be mentioned the Cook Well Company, whose offices and store rooms are situated on Market street just west of Seventh. The company has also a very large factory at Lawrenceburg, Indiana, where employment is given to nearly a hundred men, but an immense proportion of its orders are received at St. Louis, whence also most of its shipping is arranged for.

The business was established early in the 70's, by Mr. H. F. Cook, and it consists of the manufacture of and trade in tubular well supplies, mining pumps, and every article in that line which is required in the mining and kindred industries in Missouri. The enormous growth



of the electric light and power industry in Missouri has led to the establishment and building up of a very large industry in the special line of pumps needed in electric plants, and this is a specialty in which the Cook Well Company especially excels.

The productions of the company present features of the highest merit, and are eminently adapted for the necessities of cities, towns, railway stations, breweries, manufacturing, etc., the firm being prepared to contract for the provision of a supply of water ranging from 1,000,000 to 100,000,000 gallons per day. They are the manufacturers of the famous "Cook's Patent Double Piston Plunger Deep Well Pump," for mines and artesian wells; "Cook's Patent Double Piston and Double Acting Walking Beam Power Pump," the "Improved Brass Lined Cornish Pump," and "Cook's Patent Brass Tube Well Strainer."

DRUGS AND CHEMICALS.

THE business transacted in St. Louis in drugs, druggists' sundries, chemicals and kindred industries is enormous, and the city is the best distributing point in these lines in the country. On the next page some description is given of the largest drug house in the world, which is one of the prides of St. Louis, and to which visitors to the World's Fair are specially invited. There are also in the city a number of substantial wholesale druggists' firms, and the business they transact is very large.

It is estimated that about \$8,000,000 capital is invested in the various branches of industry and commerce included in this section. About a fourth of that sum represents the value of plant and the capital involved in the manufacture of patent medicines, sixty firms making specialties of this kind. Druggists' preparations are produced in one hundred and thirty-eight establishments, and these have a capital of some \$200,000, besides which there are twenty chemical factories whose joint capital is largely in excess of \$2,000,000.

These figures represent the manufacturing interests of the city in these lines, but they are entirely exclusive of the jobbing and distributing trade, which is colossal in its extent. From Europe shipments are received constantly of all the latest novelties in drugs and druggists' sundries and notions, and these novelties are distributed throughout the entire West, Southwest and South, by aid of upwards of one hundred traveling men, who, starting from St. Louis,

cover the territory named with the completeness and system of an advancing army. Shipments to Canada, Mexico and South America are not uncommon, while there is also an increasing trade with Australia, China, Japan and other very distant points. So admirable is the machinery of distribution in the city that it is quite common to have a specialty or preparation owned elsewhere, placed in St. Louis in order that it may be promptly placed on the market.

The report made at the end of 1892 to the St. Louis Chamber of Commerce states that the business of the drug houses during the year proved that St. Louis maintains its pre-eminence as a supply point for drugs and medicines, showing not only an increase in the quantity of its manufactures, but also in the quantity received from other places to be distributed from here. Some houses report their increase of business at 7 to 10 per cent over 1891, with all the conditions of a most healthful and satisfactory trade, and St. Louis growing in favor as a market. The manufacture of chemicals, salts, acids and proprietary medicines in the city is constantly and largely growing, that St. Louis stands second, if not first, among cities of the United States, in the amount and value of these products, and that they are very largely sold in the Eastern States, as well as in the Western and Southern, with some exports to foreign countries. The total trade for the year, including the medicines, chemicals, salts and other similar products was about \$12,000,000.

MEYER BROTHERS DRUG COMPANY.

THE largest drug establishment in the world is located in St. Louis, and is owned by the Meyer Brothers Drug Company, of that city. Mr. C. F. G. Meyer is president of the company; Mr. Theo. F. Meyer, first vice-president; Mr. Fred. G. Meyer, second vice-president; Mr. Geo. T. Llynn, third vice-president; Mr. Gustav J. Meyer, secre-

utilized for business and storage, and one of the most interesting sights in St. Louis is the arrangement of bins, shelves, etc., in the colossal building.

An important branch of their business is the laboratory, for the examination and analysis of medicinal drugs furnished to the company's customers, as it is their rule to furnish only the best medicinal goods obtainable. In this department are also manufactured their pharmaceuticals of highest standard, and the well-known Imperial Crown Extracts for the handkerchief.

The Meyer Brothers Drug Co. has attained first position among the drug houses of America by adopting and adhering to a policy of sterling integrity. It handles only the very best goods in every line, and, owing to the magnitude of its purchases, it is able to give its customers the benefit of the lowest possible prices. The house carries a full line of drugs and chemicals, patent medicines, paints, oils and varnishes, glass and glassware, wines, liquors and cigars, phar-



tary; with Messrs. J. F. W. and W. L. Meyer and E. P. Williams, directors. This immense establishment was organized in 1852 at Ft. Wayne, Ind., by Messrs. C. F. G. and J. F. W. Meyer, both of whom are still actively interested in the business, the former in St. Louis and the latter in Ft. Wayne. In 1865, recognizing that St. Louis was destined to be the largest drug market in the country, Meyer Brothers & Co. bought out Matthews & Son of that city, and a year later an Eastern office was opened in New York. In 1879, the firm purchased the drug business of J. W. Wood & Co., of Kansas City, and, in 1887, it opened a branch at Dallas, Texas.

On New Year's day, 1889, the Richardson Drug Co., of St. Louis, was burned out, and Meyer Brothers & Co. immediately purchased the interests of that firm, doubling the volume of its business in a few hours. In March of the same year the business had grown to such proportions that it became necessary to consolidate the interests of the firm in the various cities in which it was doing business, and the Meyer Brothers Drug Company was incorporated, with officers as above, and with a paid-up capital of \$1,750,000, the largest single investment ever made in the drug business. The main establishment of this corporation is just south of the Southern Hotel, St. Louis. It has a frontage of 114 feet on Fourth street, 270 feet on Clark avenue, and extends clear through to Broadway. The buildings are of red granite and brick, five stories high, and have a floor surface of 170,000 square feet. Every inch of this space is

maceutical and proprietary articles, surgical instruments, sponges, druggists' sundries, toilet articles, and a thousand other supplies. Shipments are made to all parts of the United States, and the company has also a large and constantly growing export trade with Mexico, the West Indies, and Central and South America.

The portrait on this page is of Mr. C. F. G. Meyer, who was born at Hal-dem, Westphalia, December 9, 1830. His career has been a most honorable and successful one, and in 1884 the National Wholesale Druggists' Association showed its appreciation of his sterling worth by electing him its president. He still takes an active interest in the affairs of the gigantic enterprise he founded and has been instrumental in building up, and enjoys the best possible health.

The establishment is a source of pride to Missouri, as well as St. Louis, and is spoken of in the highest terms in all parts of the country.



C. F. G. MEYER.

J. S. MERRELL DRUG COMPANY.

THE J. S. Merrell Drug Company has been in business at its present location, No. 620 Washington avenue, since 1845, and it has enjoyed a career of uninterrupted success. The business was established in 1845 by Jacob S. Merrell, one of the city's pioneer druggists. From a comparatively small beginning, by his untiring energy and devotion to duty, Mr. Merrell succeeded in building up one of the largest drug trades in the West. His traveling men explored the country in search of orders, and these once obtained, were always duplicated later on because of the eminent satisfaction these goods gave.

About eighteen years ago Mr. Cyrus P. Walbridge, who was this spring elected Mayor of St. Louis after a public career of the most honorable character, became connected with the business. He brought with him all the energy of youth, as well as the administrative ability which has been so conspicuous in late years, and his services proved of the greatest possible value.

In 1885 Mr. Merrell died, and Mr. Walbridge was appointed administrator. He discharged the duties of that position so creditably that when the company was reorganized shortly afterwards he was elected president, a position he still holds. During his lifetime, Mr. Merrell was the sole owner of the business, but after his death a company was organized to



C. P. WALBRIDGE.

continue it and incorporated with a capital stock of \$100,000. Mr. Walbridge was chosen president, Mr. Hubert S. Merrell, vice-president, and Mr. Edw. Bindschadler, secretary and treasurer. No better proof of the efficiency and

being thoroughly skilled in mixing and compounding drugs and chemicals of all kinds. Mr. Bindschadler, the secretary, was born in Zurich, Switzerland, in 1843, and came to this country in 1857. On his arrival in St. Louis he found employment in a drug house, which position he resigned in 1861 to enlist in the Federal ranks. He had not been in service long

before his thorough knowledge of drugs attracted his commander's attention, and he was made a hospital steward. At the end of the war he returned to St. Louis and, in September, 1864, associated himself with Mr. Merrell. He has been with the company nearly twenty-eight years now.

The J. S. Merrell Drug Company are wholesale dealers in drugs, medicines, druggists' sundries, glass and glassware, surgical instruments, and a most varied assortment of kindred goods. They are also the sole proprietors of Merrell's Family Medicines, which enjoy a widespread popularity. The individual members of the firm combine a thorough

knowledge of the business with the ability to judge of quality by resorting to all known tests where in doubt.

The company's place of business, No. 620 Washington avenue, is a four-story brick structure extending clear through to St. Charles street. In addition the firm operates a large laboratory and a series of

warehouses on the north side of St. Charles street, between Seventh and Eighth, where the standard pharmaceutical preparations and druggists' preparations are skilfully prepared.

The company not only does a very large local business, but ships an abundance of goods to all the adjoining States, and, in fact, to the entire twenty States in the West and Southwest, in all of which it is held in high esteem as much for its integrity as for the excellence of its supplies.



H. S. MERRELL.

ability of these gentlemen can be adduced than the wonderful advance the company has made under their management. Mr. H. S. Merrell is a son of the company's founder. He has especial charge of the company's laboratory and manufacturing department,



E. BINDSCHADLER.

HOPKINS-WELLER DRUG COMPANY.

MISSOURI is not only noted for having in its largest city the best drug market in the world, but it is also noted for the high reputation of the wholesale druggists located within its extensive boundaries. Among these houses no individual establishment has done more to produce this gratifying result than the Hopkins-Weller Drug Company, which carries on business in St. Louis, with headquarters on Washington avenue at the northwest corner of Main street, a location admirably adapted for carrying on a business of the character theirs has assumed.

The firm is composed of Messrs. Geo. K. Hopkins, W. H. Weller and Louis V. Clark, three gentlemen not only well known to the pharmacists of Missouri, but also to druggists doing business in a very large number of adjoining and even distant States. The two gentlemen after whom the firm is named are veterans in the drug business, both of them having been engaged in handling medicines for some thirty years, and having during that time acquired a thorough insight into the intricacies of the business, which can only be carried on successfully by experts.

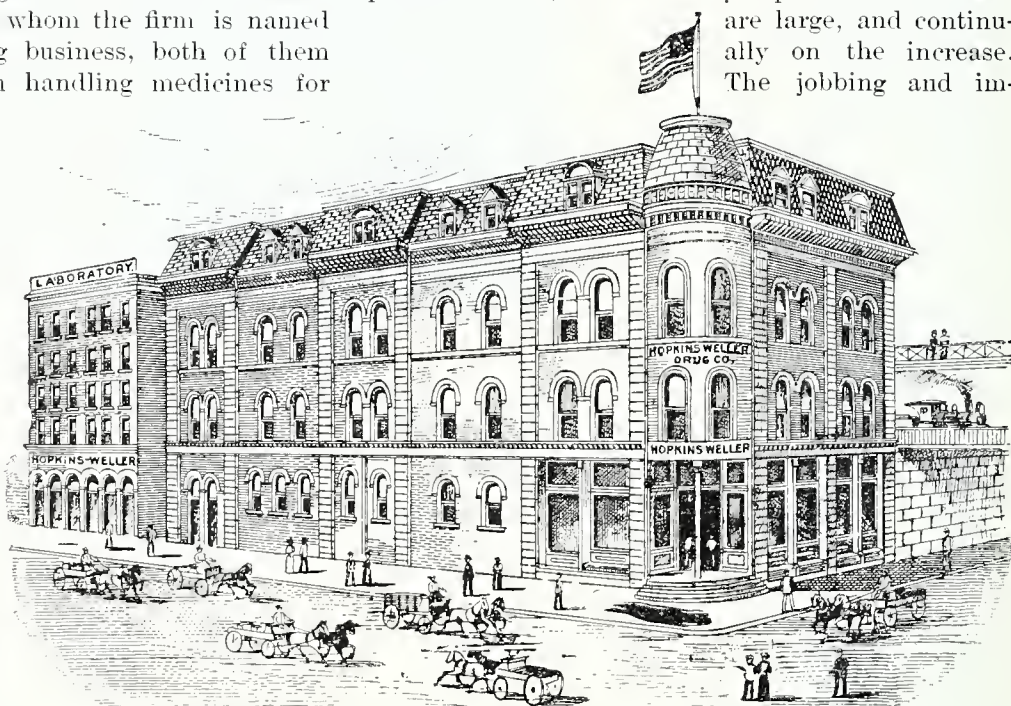
During the war, Mr. Hopkins, under the firm name of Quigley, Hopkins & Co., ran a large drug house in Alton, but, the business increasing so rapidly, he concluded it would be necessary to cross the dividing line between Illinois and Missouri, and locate at a first-class distributing point and railroad center.

Selling out his interest in the Alton firm in 1878, he accordingly came to St. Louis, and in February of the following year he established a new drug firm under the title of Geo. K. Hopkins & Co. He had for his partners Messrs. Frank P. Hopkins and William H. Weller, and these gentlemen established the nucleus of what has since become one of the most important wholesale drug houses of the State.

Selecting suitable premises at 209 to 211 North Second street, the gentlemen named prospered signally during the first few years, and after they had got their business on a firm footing still greater success attended their efforts. So rapid was the progress made that, in June, 1891, it was deemed expedient to incorporate under the laws of the State, and the Hopkins-Weller Drug Company was formed, with Mr. Geo. K. Hopkins as president, Mr. Wm. H. Weller as vice-president, and Mr. Louis V. Clark as secretary and treasurer. Just after the incorporation, the firm moved to the large and commodious premises now occupied. These are located on the northwest

corner of Main street and Washington avenue, right in the shadow of that great highway of commerce, the Eads bridge, and most conveniently situated for shipping goods promptly by both rail and river. The building is handsome and well adapted for its purpose. It contains four stories and a basement, and also a separate warehouse in the rear, the latter fronting on Washington avenue and having five stories and a basement.

In the warehouse is found a stock of goods to be found in high-class wholesale drug houses, and various floors are given over to departments of this description. A specialty is made of the importation of the very highest grades of druggists' notions and sundries and of sponges and chamois. The company has probably the largest trade of any house in the West in these particular lines, while in every department their sales are large, and continually on the increase. The jobbing and im-

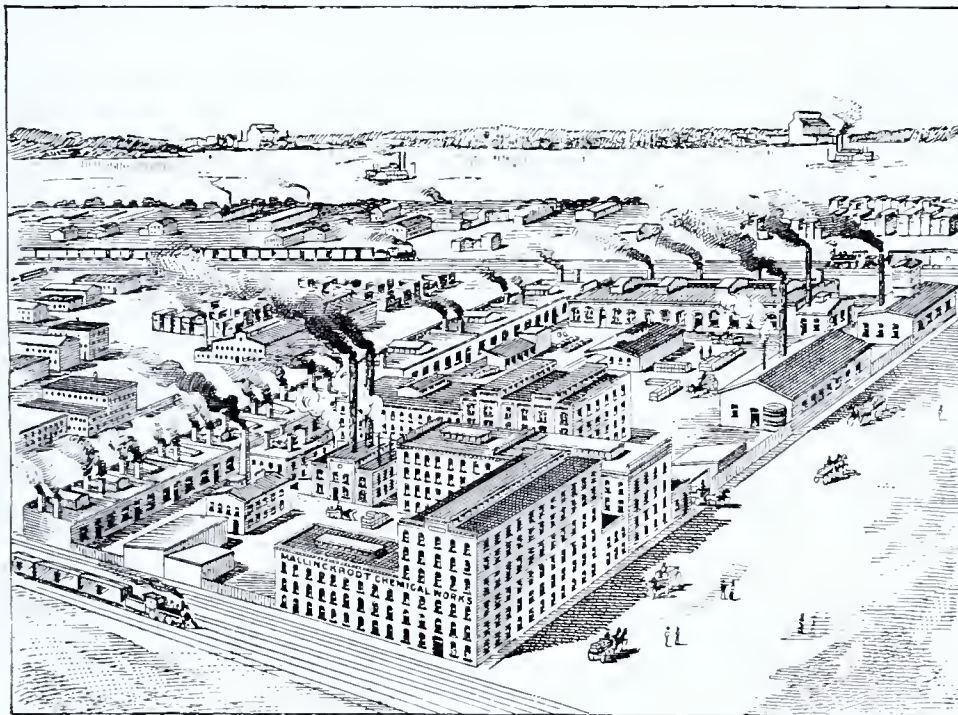


porting business is so large that a very heavy office force has to be maintained, as well as quite a small army of skilled factory hands. The traveling men of the house cover Missouri, Illinois, Arkansas, Kansas, Texas and Tennessee very thoroughly, and sell many hundred thousand dollars' worth of goods to the druggists of these States every year.

The company supplied a very large quantity of the alcohol and other chemicals used in preparing the various State exhibits for Missouri at the World's Fair, and the excellent condition of the specimens speaks a great deal for the quality of the goods supplied by the house. Its customers as far west as Colorado, and as far south as Mexico, all endorse the statement that Hopkins-Weller goods cannot be excelled, and despite the opposition the company encountered when it first commenced business, it has overcome every obstacle as fast as it presented itself, and it now stands well in the front rank among the wholesale drug houses, not only of the West, but also of the United States.

MALLINCKRODT CHEMICAL WORKS.

FEW more representative establishments are to be found in Missouri than the Mallinckrodt Chemical Works, of which Mr. Edward Mallinckrodt is president, and Mr. Oscar L. Biebinger, secretary.



MAIN WORKS, AT ST. LOUIS, MO.

This business was started in 1867, and from a very small beginning has grown to be one of the largest establishments of the kind in the United States, and, indeed, in the world. The main works of the company at St. Louis cover an area of five acres, situated between Main, Hall, Mallinckrodt and Salisbury streets. The buildings are large, substantial structures, fitted up with the most modern machinery and apparatus for economic manufacturing. The company also operates branch works in Jersey City, N. J., where it owns twelve acres of land admirably located for manufacturing purposes, with railroad and water connections for shipping.

At the branch works in Jersey City such articles are made for the Eastern market as will not bear the transportation cost from St. Louis, also many articles which can be manufactured to better advantage in the East on account of cheaper materials.

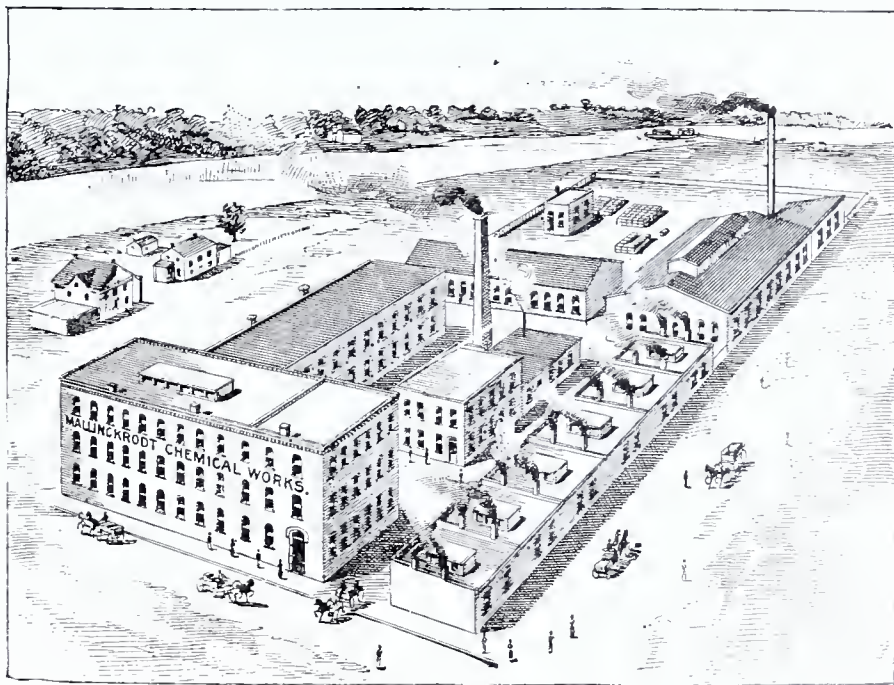
This company manufactures a full line of pure chemicals for medicinal, photographic and analytical purposes, embracing several

hundred articles. A number of technical products are also made, among the most important of which are Aqua Ammonia and Anhydrous Ammonia, of which large quantities are shipped to all parts of the country for the cooling of breweries, the manufacture of artificial ice, etc.

The company also has the exclusive agency for the United States for the sale of the products of several foreign manufacturers, notably of the Brunswick Quinine Works, one of the oldest and most renowned manufacturers of quinine in Europe. When we consider the large number of articles manufactured, that they are mostly high priced (some of them costing many dollars per ounce), that they are turned out by the ton, and that hundreds of hands are employed, an idea of the extent of the business may be formed. The Mallinckrodt Chemical Works sell their goods in every State of the Union and also export

to other countries, the superior quality causing a constantly increasing demand for their brand.

The company has an office and warehouse at No. 90 William street, in New York City, where a full



BRANCH WORKS, JERSEY CITY, N. J.

assorted stock of their goods is kept, and from which the trade in the Eastern States is supplied.

MINERAL WATERS.

THE central location of St. Louis makes it a very important distributing point for mineral or similar waters. Immense quantities of Spa and Lithia Waters are received in the city and distributed throughout the territory which looks to the city for well-nigh everything it needs. About forty years ago, Dr. Enno Sander, commenced handling mineral



waters in connection with drug stores, and his business became so extensive that in 1868 he sold out the stores and confined his attention solely to manufacturing. He now produces mineral waters in large quantities, especially Carbonic, Selters, Vichy and Garrod Spa, and Tenfold Carlsbad Water, all of which he manufactures.

He commenced in 1853 with a single drug store, but, as already stated, in 1868 he had so extensive a business that he sold out the stores and confined his attention exclusively to the business which has earned for him such a high reputation. Twelve years ago, Dr. Sander moved his factory to its present quarters, at 125 to 129 South Eleventh street, St. Louis. The space occupied by the business measures 56½x150 feet, of which nearly half is covered by a substantial two-story building, containing office, factory, boiler house, store and packing room. All of these are very complete, and are regarded as among the best adapted for their purpose in the United States. In the rear of the same lot are the commodious stables and wagon-sheds needed to carry on the business. Twenty-two skilled workmen are constantly employed, and the capital invested in the works and machinery approximates \$40,000.

Dr. Sander gives his personal attention to the work and has made a very careful study of the manufacture of palatable and healthy mineral and table waters, which he ships in bottles to all parts of the United States, the export trade being one of the most important in the business. Locally the products of the factory are appreciated at their full worth, and the sales to St. Louis retailers amount to many thousand dollars per month.

The waters of the factory are prepared from chemically pure material, distilled water is used, and hence they excel in purity, reliability, and constancy of composition. Whenever they have been exhibited in competition with other artificial waters, they have

received the highest premiums and awards, and, what speaks quite as eloquently for their superior quality, they command the highest price in the market, and receive the unqualified endorsement of the medical profession in preference to other waters.

Chicago and St. Louis are the two points which call for the largest quantities of product, but almost all the cities and States send in their orders, and there are special agencies in New York, Hot Springs, Cincinnati, Kansas City, Louisville, Omaha, Milwaukee and Washington, in addition to the two cities already named.

The Aromatic Ginger Ale manufactured by Dr. Enno Sander is sold exclusively on all the Pullman palace cars in the West and Southwest. It is an exceptionally safe and useful drink, being absolutely non-intoxicant, and being also quite a valuable medicinal agent. Its judicious use will fortify the system against the deleterious influence of excessive drinks of ice water, and it is also exceedingly valuable as a preventative and cure of several summer complaints.

The Tenfold Carlsbad Sprudel Water, of this factory is another specialty deserving more than passing notice. It has been mentioned in the highest possible terms in the most prominent as well as popular of our medical periodicals, and Dr. G. J. Bernays has spoken of it in the *Medical Brief*, which has the largest circulation in the world of any medical paper, as exceeding in value any other mineral water of its kind he has ever tested.

The "Garrod Spa" and the "American Lithia Water," two other products of this factory, have become known all over the country as the most effective antacids and the most reliable remedies for gout, rheumatism and all diseases of the uric acid diathesis. An eminent physician, giving his opinion about Dr. Sander's factory in general, and the constancy of the ingredients of its products in particular, and comparing the Garrod Spa to the natural lithia waters and the well-known inconstancy of their chemical components, has said that it is not produced in nature's laboratory, where, from the scarcity of the salts' of lithium, natural water can obtain but little more lithia than exists. It is, however, manufactured in a chemical laboratory with the most exact of modern apparatus, and provided with every necessary ingredient chemically pure. These ingredients are weighed, measured and compounded by experts, thus furnishing a mineral water of unvarying proportions and definite strength.

The Garrod Spa has been intended for medicinal use only, and is put up in two forms, "sparkling" and "still;" the former comes exclusively in pints, the latter in half-gallon bottles; the American Lithia Water is less medicated, and, as it is very palatable and mixes well with wines and liquors, it has become the favorite beverage of all persons who like to indulge with impunity in the pleasures of the table.



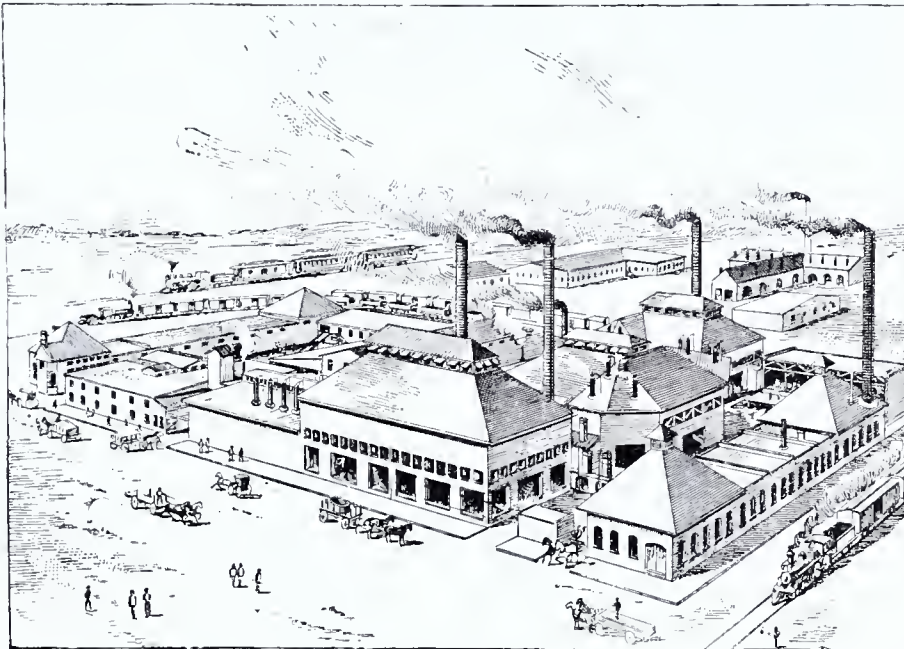
MISSISSIPPI GLASS COMPANY.

A VERY large proportion of the glass used in the skylights in the World's Fair buildings was supplied by the Mississippi Glass Company, a Missouri institution which ranks among the leading industrial enterprises of the State. Its contract extended to nearly 2,000,000 square feet of glass, and the excellent manner in which this was carried out is more eloquent of the resources and perfect business methods of the concern than any mere figures can show. The Mississippi Glass Company, whose general offices and works are in St. Louis, with branches in New York and Chicago, was incorporated April 6, 1874. Its president is Mr. Edward Walsh, Jr., who resides in St. Louis, and personally directs the operations of his company. The vice-president, Mr. E. W. Humphreys, resides in New York and supervises the business of the eastern branch.

The glass factory and clay works of this company are located near the Merchants Bridge, in North St.

portion of the skylight glass to be seen throughout the United States, as well as the cathedral and other rolled glass in colors, is produced by this company. In ornamental glass the company makes a specialty of patent Ondoyant, patent Venetian, patent Diaper, patent Diamond Star, patent Muranese, patent Trimidical, Diamond Ribbed, Rolled Cathedral and Rolled Antique. These vary in design, and are supplied in all colors and tints. Deck lights of every possible design and color, advertising glass cards, crown discs and ornamental pressed glass for railway cars, house decoration, etc., are all specialties of the Company.

The Company also manufactures fire-brick of every kind, tank and furnace blocks, blast furnace and cupola linings, regenerator soaps and tiles, and all articles of fire-clay used in the construction of glass and metallurgical furnaces. The best clays, some fifteen in number, are used, and all clays are thor-



Louis. The site occupied exceeds six acres, and over three hundred hands are kept in constant and contented employment. The illustration on this page will give some idea of the extent of the factory. Thirty pots and one tank furnace are kept in constant operation, with a total daily capacity of 30,000 square feet of glass. It is necessary to run the plant to its utmost capacity, owing to the steady demand, and the heavy orders the company is constantly being called upon to fill. Mention has already been made of the glass supplied by the Mississippi Glass Company for the World's Fair buildings, and among other exceptionally large contracts filled by the company may be mentioned the glass needed to complete the new Union Depot of St. Louis.

The Mississippi Company manufactures white rough and ribbed, and patent double corrugated glass for skylights. It also makes a specialty of cathedral and figured glass in white and colors. The major

oughly tested in glass furnaces before being used. The clay works contain the best modern machinery for grinding and otherwise preparing clays. A careful arrangement of bins, in which batches for pots, tiles, special brick and the like are soaked, tramped and matured, enables the company to execute orders without loss of time, and from thoroughly prepared materials. The high grade of these goods is indicated by the fact, that the Company builds and repairs its furnaces with the productions of the clay specialty department and makes all glass house pots for own use. The Mississippi Glass Company has an unequalled reputation with the leading wholesale dealers of the United States, and it is through these that the bulk of its enormous business is transacted. In addition to this, an export trade of quite considerable proportions is carried on with Mexico and other Spanish-American countries, and the company finds itself well stocked with orders at almost every period of the year.

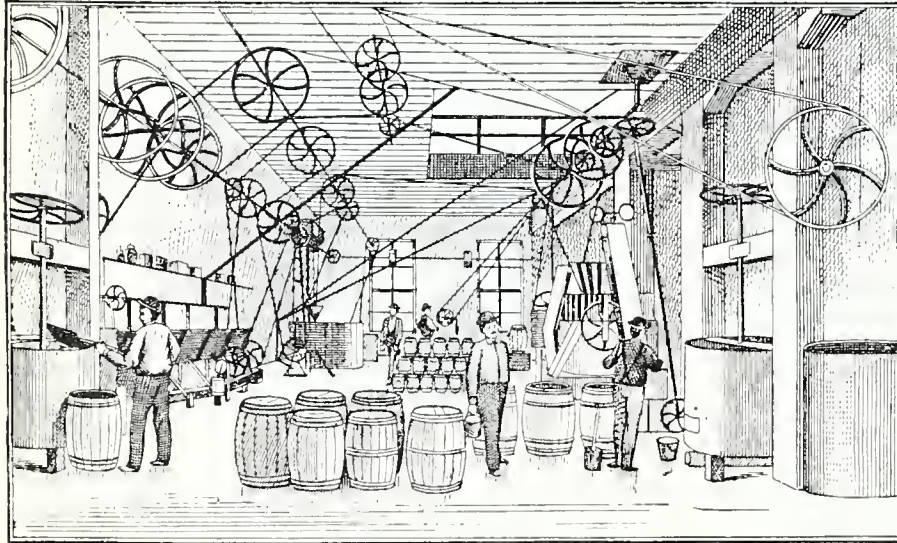
PAINTS.

THE Vane-Calvert Paint Company, of St. Louis, has been in business in that city for the last twenty-five years, and has attained a high reputation for mixed and other paints. It was originally known as Vane-Calvert & Co., but in 1884 its business had increased so largely that it was

the country. The Vane-Calvert brands of white lead are registered, and its output is fully five tons per day. The output of mixed paints is 2,500 gallons per day, and all the specialties of the house are protected by patents of great value. America being the pioneer in mixed paints, the statement that the Vane-Calvert

Company's mixed paints are the oldest in the United States means that they are the oldest in the world, and this is a fact that is well known and generally recognized.

It is difficult to say which of the products of this company are the most celebrated, but it is certain that all have an enviable reputation. The Standard, or green label, and the Elastic Cottage, or yellow label, ready-mixed paints are the oldest brands on the market, and the Channing brand of white lead and the white shellac liquid wood filler are both in general demand in all sections of the country.



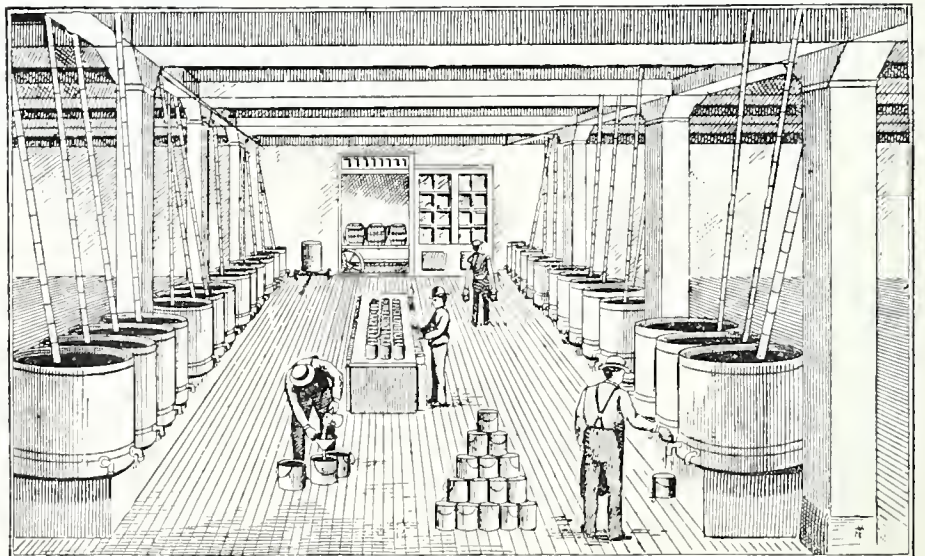
deemed expedient to incorporate the Company, with Mr. M. V. Calvert as president, Mr. R. L. Calvert as vice-president, and Mr. Clarence R. Vane as secretary and general manager. These gentlemen, with the large staff under them, make it their aim to produce the best grades of goods in their line, and they have succeeded in establishing one of the largest establishments in the country for the manufacture of paints, which have attained a distinctly international reputation.

The main offices, salesrooms and factory are in St. Louis, the same location having been occupied for twenty years. The value of the plant exceeds \$100,000, and, in addition to about forty skilled workmen in the factory, the firm finds steady employment for fifteen clerks and salesmen. Goods are shipped to all points of the United States, and when it is stated that the shipments are made to all centers of importance, from Maine to California, and from the Lakes to the Gulf, there is no exaggeration, but merely a record of actual fact. The Company ships more full carloads of mixed paints to the jobbing trade of the West and South than all other manufacturers in the same line combined.

The Vane-Calvert paint factory is a distinctly Missouri institution, and one of which its citizens are thoroughly proud, largely on account of its record as the oldest and largest producer of mixed paints in

The wood stains and oil colors of the house are very varied in character, and exceedingly popular in all the leading cities, the efforts of the house to produce a thoroughly reliable article in each line having been more than successful.

To recapitulate, it may be stated that the special-



ties of the Vane-Calvert Company are ready-mixed house paints, carriage and buggy paints, wagon and implement paints, barn, fence and roof paints, household and decorative paints, ready-mixed floor paints, white lead, white shellac liquid wood filler, pure oil wood stains, snow white zinc in paste form, pure colors in oil, ochres and primers of all kinds, varnishes, putty and tinted lead.

BUILDING AND REAL ESTATE.

THE most extraordinary increase in manufacturing outputs in St. Louis during the eighties, as shown by the United States census, was in branches directly connected with the building trade. Thus, the output of brick and stone work in 1880 was only about \$1,500,000. This had increased to \$9,000,000 in 1890, and is now about \$12,000,000. The lumber and planing mill products increased from \$2,500,000 to nearly \$6,000,000, while the foundry and machine shop product more than doubled itself, forcing St. Louis to the front in a most remarkable manner in every line of industry upon which the activity of the architect and builder would naturally be reflected.

The growth has been the legitimate outcome of immense activity in St. Louis real estate, and of the demand for new buildings which has become so great of late years as to make it a very difficult matter to supply the requirements of the homeseeker.

The ablest review yet written of the real estate activity in St. Louis was penned by Mr. Thos. B. Miller, now real estate editor of the *St. Louis Star-Sayings*, and from his summary of the situation on the 1st of January, of this year, the following extracts are taken:

"In no department of finance or commerce of St. Louis is the progress of the city so clearly shown during the year of 1892 as in the phenomenal growth of its real estate business. The increase over 1891 shows a gain of 1,193 in the number of transfers filed for record and a gain of \$22,764,968 in the total amount of property sold. The entire sales for the year 1889 fell short of \$24,000,000. Last year's business comes near trebling that amount.

"In 1892 there were 11,879 transfers filed for record, representing sales of property amounting to \$62,474,324. This is indeed an immense increase in this one line of business—so great that the average reader, and even many presumably well-posted real estate agents, will not likely understand or appreciate the extent of it. The year's sales represent considerably over \$1,000,000 a week from January to December, a record heretofore attained to only in a few weeks of a whole year. The gains made in real estate sales for 1892 amount to nearly the total sales consummated during the whole year of 1889.

"Following that, the term of 1890 stood out in bold relief as the banner real estate year in St. Louis, just as it did, for that matter, all over the country. Now, even grand as the record of 1890 was, the year of 1892 has surpassed the former's proud standard by \$19,742,149.

"Another indication of the enormous increase of last year's business over each of the former years is seen in the annual statement of the office of the Recorder of Deeds. This report shows that there was a grand total of 40,081 instruments of writing of various kinds filed for record, a gain of 4,046 over 1891, which surpassed all previous years. During 1892 there were 7,792 deeds released or canceled, a

gain of 1,161 over 1891, indicating a most healthy and solid condition of the community financially. The total receipts of the office for the past year were \$63,833, an increase of \$6,194 over 1891.

"The growth of the real estate business cannot be credited to speculative ventures. It is a natural consequence of the expansion and development of every interest that goes to make this great city. Sixth street ceased to be the western boundary for business two years ago. Twelfth street, formerly looked upon as an unsurmountable Chinese Wall, has been taken possession of and completely overrun by the march of business westward. The new City Hall contributed vastly to this remarkable change, while the construction of the new Union Depot has made prospective business property of every lot from Walnut street to Franklin avenue, east of Twenty-first street. These central attractions for multitudes of busy people, and the overcrowding and consequent high rentals in the old prescribed trade center, have forced business over the barriers, and created a demand and new use for property which the venerable citizen used to take delight in predicting would forever remain a tenement district.

"The enormous amount of building has undoubtedly been the main factor in producing the wonderful activity in real estate transactions during 1892.

"It is shown by the Building Commissioner's books that \$16,976,978 went into building improvements, and the deduction is based on an estimated two-thirds valuation of the cost of buildings for which permits have been issued. Taking the figures as they stand, however, there is a gain of \$3,700,789 over the splendid building year of 1891.

"Frequently a number of houses are constructed under one permit. For the year 1891, there were 4,837 new buildings erected. Of these 3,378 were of brick and 1,459 were frame structures. This was much greater than all previous records, but even that has been surpassed by 1892. The public records show that there were 5,491 buildings erected in 1892. This is an increase of 654 buildings, or a gain of nearly 14 per cent over 1891. During the past year there were 4,056 brick and only 1,435 frame buildings put up.

"The following comparison for the last three years, of the character of buildings erected in St. Louis, will be interesting and conclusive of the remarkable progress that the city is making in the line of better improvements:

Year.	Brick.	Frame.	Total.
1890.....	2,879.....	1,328.....	4,225
1891.....	3,378.....	1,459.....	4,831
1892.....	4,056.....	1,435.....	5,497

"A striking fact in this table is the increased number of brick buildings. In 1890 over 31 per cent were frames, in 1891 frames had decreased to 29 per cent, while their number has been diminished in 1892 to only 26 per cent or 24 less than the actual number of wooden houses built in 1891."

HAYDEL & SON.

THE oldest real estate agency in St. Louis is that of Haydel & Son, whose offices are on the ground floor of the Wainwright Building, one of the finest office buildings of the city. This house has literally grown up with the city, for it had been in active business for twenty years when the war broke out, and it has seen St. Louis grow from a frontier to a river port, and from a river port to the great metropolis of the great West and Southwest, as well as to the best railroad center in America. Time has necessarily wrought changes in the personnel of the firm, but during the half century of its existence its standing with the community has never varied, and it has always enjoyed the absolute confidence of all with whom it has had occasion to do business.

It is interesting to note that the founder of this long established firm, Mr. John Byrne, Jr., has only been dead for about four years. He came to St. Louis from New York in 1839, and in the following year established the first real estate agency in the city. In 1865, his son-in-law, Dr. F. L. Haydel, became a partner in the firm, and relieved Mr. Byrne of much of the active work, and in 1881, his son, Mr. H. L. Haydel, also entered the firm. Mr. Byrne would

not retire entirely from active work until he had completed his seventy-fifth year, and up to the day of his death, which occurred in 1889, when he was 84 years of age, he took an intelligent interest in the business.

Few men have left behind them a finer record than this pioneer realty man. He was an oracle on all local events, and was consulted by every Western historian. He made a specialty of rent collection and property management when he started in business and he kept this up until his retirement. His successors have done the same, and no firm in the State has more important interests entrusted to its care.

Mr. Byrne also loaned very large sums of money on approved real estate security, and the hundreds

of thousands of dollars which he placed in St. Louis for Eastern capitalists had a marked influence on the city's growth and progress. In addition to this, the care with which he selected securities and the invariable promptness with which obligations were met did a great deal towards establishing for St. Louis the high reputation it enjoys as one of the most conservative financial cities in the world.

Messrs. Haydel & Son had the benefit of many years connection with this successful and reliable gentleman, and they have never had any inclination to change the policy of the house. Thousands of

dollars continue to be placed by it month after month, and the care exercised in this line of business relieves its clients from risk of all kinds, as well as insuring for them a good return for their capital. In rent collecting and property managing it is equally successful, and its popularity among non-resident owners is remarkable.

Of late years considerable attention has also been paid to the handling of a high class of real estate, chiefly of an improved character, and the firm's sales are often very large. They are special agents for Fairview

Park, one of the most attractive suburban resorts, within half an hour's ride of the business section. Although lighted by electricity and on the route of an electric road shortly to be constructed, this addition is strictly rural in its surroundings and attractions, is situated high up on St. Louis county hills, and is liberally supplied with shade and forest trees.

Dr. F. L. Haydel was for many years a director and one of the leading spirits of the St. Louis Real Estate Exchange, and his son, Mr. H. L. Haydel, is a member of the present directory, which is composed mainly of the younger element, and is the present treasurer of that organization. He is also secretary of the Madison Realty Company which owns some valuable property in the thriving little city whose name it bears.



WAINWRIGHT BUILDING.

CHAS. H. TURNER & COMPANY.

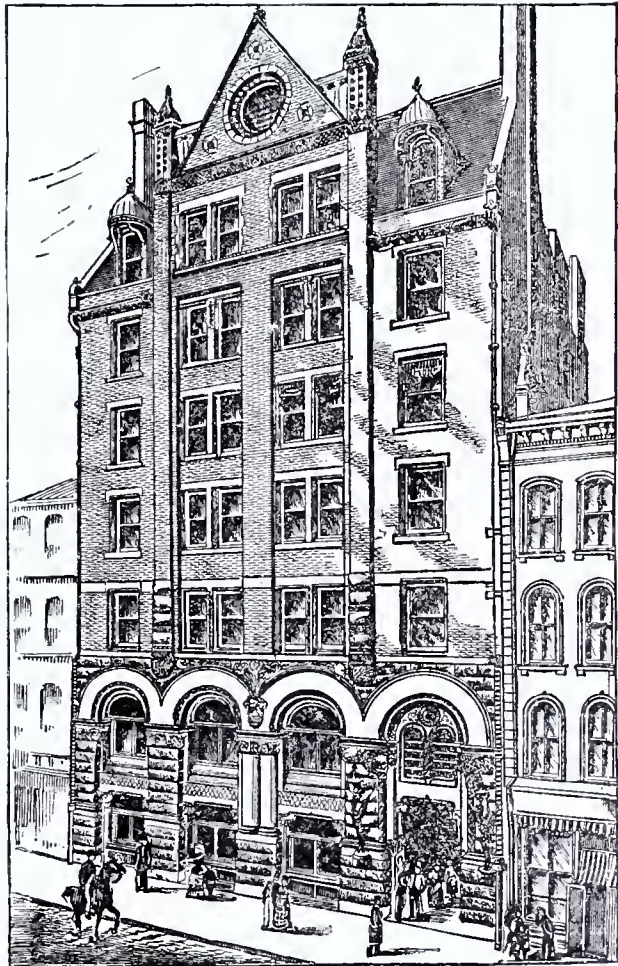
NO real estate firm in Missouri, or indeed in the West, ranks higher than that of Chas. H. Turner & Co., of St. Louis. The firm has been in existence about twenty years, and is composed of Chas. H. and Thos. T. Turner, sons of the late Major Henry S. Turner, one of the pioneer citizens of St. Louis. The members of this firm occupy important positions of a more or less public character, and they have both been importuned again and again to allow their names to be used in contest for municipal and other offices. Mr. Chas. H. Turner is the St. Louis vice-president of the American Surety Company, president of the St. Louis and Suburban Railroad, a director in the Mechanics' Bank, secretary of the St. Louis Exposition and Music Hall Association, and also a director in the Union Trust Company. Capt. T. T. Turner is president of the St. Louis Dairy Company, a director in the Mississippi Valley Trust Company, and was for some years president of the Turner Real Estate Company, of which he is now a director, and of "The Planters' House" Company.

The firm owns an immense quantity of valuable real estate either directly or in connection with the Turner Real Estate Company. Among the most valuable quarters in the down-town section thus owned are the northeast corner of Fourth and Chestnut (69x100), the northwest corner of Fourth and Olive (56x128), the southeast corner of Eighth and Olive (40x128), the northeast corner of Twelfth and Olive (one hundred feet square), the southwest corner of Twelfth and Pine (30x100), the northwest corner of Twelfth and Chestnut (55x100), and the southwest corner of Twelfth and Chestnut (91x100). Capt. Turner also owns personally the northeast corner of Twelfth and Market (100 feet square), and the southwest corner of Twelfth and St. Charles (110x100).

It will be seen that the firm's interests on Twelfth street cover some of the most valuable corners, and the marked revival of interest in that important thoroughfare is largely the result of the example set by a firm whose judgment has never been called in question, and which has not been known to make a mistake in its investments. It will further be noted that few real estate firms in the country have such a large personal ownership of property, and C. H. Turner & Co. are even more real estate operators and managers than they are agents. Indeed, although they have engineered successfully some of the very largest deals ever consummated in St. Louis realty, the bulk of their attention is given to the management of properties and to the loan of large sums of money on approved security in the city and county. In addition to the large amounts of money invested in the business by the partners themselves, Capt. T. T. Turner acts as trustee and curator for a large number of estates, including eight or ten in which the amount involved is enormous. The loanable

funds of these estates exceed a million and a half dollars, and this money is invested with the greatest possible care and in such a manner as to materially aid in the advancement of the city's interests. In many respects the firm is not only without a superior but it is also without an equal, and it certainly ranks among the most solid and substantial firms in the West.

Turner & Co., representing the Turner Real Estate Co., erected the building in which their office is located, about five years ago. This is the Turner



TURNER BUILDING, THE FIRST FIREPROOF OFFICE STRUCTURE ERECTED IN ST. LOUIS.

Building, and it was the first really fireproof office building ever erected in St. Louis. It was built by Peabody & Stearns, the celebrated Boston architects, and started the fashion which has resulted in such a transformation scene in the down-town section of Missouri's greatest city. The firm also negotiated the sale of the northwest corner of Washington avenue and Fourth street, on which the magnificent Boatmen's Bank Building now stands, and also the site of the Hagan Opera House, on Tenth and Pine streets.

E. S. ROWSE.

REFERENCE has been made in another portion of this book to the very favorable showing made by Missouri in the matter of farm mortgages and individual indebtedness. Missouri farmers have been so prosperous for several successive years that they have been able to pay off mortgages very rapidly, and also to keep their interest on what is remaining paid up without difficulty. Missouri is now recognized as one of the best States in the Union in which to loan money, and the conservative policy, adopted by the people generally, and especially the business men and agriculturists, accounts for this feeling which is amply justified by results.

In years gone by, the same confidence was not extended, and at one time Eastern houses were very backward about placing money on loan in Missouri, and especially on Missouri farm lands. The credit for breaking the ice and bringing about a change in the condition of affairs is due to the Connecticut Mutual Life Insurance Company of which Mr. E. S. Rowse, of St. Louis, is the resident financial and real estate agent. When other insurance companies and wealthy corporations in the East were looking askance at Missouri, the Connecticut took a more sensible view of the situation, and, with a discernment which subsequent events have proved to have been wise in the extreme, it, even before the war, commenced lending money freely in a State which then had magnificent prospects, and which now has fulfilled the most sanguine expectations.

During the last thirty-five years, the Connecticut Mutual has loaned in Missouri about \$35,000,000, and no money that it has placed out on loan has yielded them such satisfactory results and given them so little trouble. Since Mr. Rowse took charge of the financial and real estate interests of the company, its transactions have become much larger, and during the last ten years, upwards of \$20,000,000 have been loaned on city and farm property in Missouri. It speaks volumes for the tact and skill of Mr. Rowse, that not a single one of the loans thus placed has fallen in; indeed, the security in every case has been so good and the enhancement of values has been so steady, that the margin has long since become so great as to do away with any possible anxiety that might have been felt at first.

A very large percentage of this money has been loaned on city property in St. Louis. Mr. Rowse was one of the first men to recognize the fact that St. Louis was destined to become a city of a million inhabitants, and that it needed more lofty and valuable buildings than it contained up to within the last ten or twelve years. He accordingly encouraged the erection of lofty structures, and several million dollars of his principal's money have been used to aid the construction of elegant business and office buildings on the main thoroughfares of St. Louis.

The company is still, through Mr. Rowse, placing money freely in St. Louis, and the business continues to be highly satisfactory. The company's

terms are exceptionally liberal, and the high standing of the Connecticut and of its St. Louis real estate and loan representative makes it exceedingly popular with the best class of borrowers.

During the last ten years, Mr. Rowse has negotiated loans amounting to about \$7,000,000 on Missouri farm property, and he reports that not one of these loans is giving him any anxiety whatever. The farm loan business is conducted on a broad-gauge basis, and while ample security is required, the terms of the company are such as to reduce the expense and trouble to the borrower in every way, and to facilitate the increase and growth of his business.

Another source of the popularity of the Connecticut Mutual in the State of Missouri and in the city of St. Louis, is undoubtedly the fortunate selection the company made when it placed its loan and real estate business in the hands of Mr. E. S. Rowse, who has been in the real estate business in St. Louis for about a quarter of a century. During this period he has negotiated some of the largest transactions recorded, and during the whole of his career he has conducted a high-class and extensive real estate business. For some years he has been recognized as among the leaders in the profession, and there are few houses whose aggregate transactions exceed his. Although somewhat conservative in his business methods, Mr. Rowse has unbounded faith in the future of St. Louis and Missouri. Indeed his advice to clients, as to how to invest their money, has in many instances been the means of netting very large sums of money to them in the shape of profits, and as he has never sanctioned any strictly speculative enterprises, his reputation as an adviser has not been damaged by losses incurred by his clients.

Mr. Rowse is not by any means an old man, but he considers that several years of public service have entitled him to rest from duties of that character. His standing in the community is, however, so high that he is frequently importuned to take office and head public movements. He insists in every case in younger men getting into harness, but his advice and co-operation is always at their disposal, and his influence in every popular movement having for its object the substantial betterment of the city and State is always felt. He served for eight years on the St. Louis City Council, and his record is an enviable one.

While he was thus devoting his time to public work, the agitation for and against improving the streets of the city was in progress. As Chairman of the Committee on Public Improvements, Mr. Rowse co-operated actively with the Commercial Club and the Street Commissioner in their efforts to secure first-class streets for St. Louis, and it is largely to his efforts that St. Louis is indebted for the splendid granite and other streets which have earned for it the reputation of being one of the best paved cities on the continent.

THE J. T. DONOVAN REAL ESTATE CO.

REAL ESTATE values in St. Louis have increased steadily with the increase in business and population, yet it is universally conceded by visitors that values are lower, in comparison with the rental value and use of the property, than in any other city in the country. There has never been a sudden or spasmodic rise as in other cities. In order to facilitate investments in real estate loans, the J. T. Donovan Real Estate Company has adopted the system of guaranteeing investments made through them, both principal and interest. When a firm with the capital and business reputation which it enjoys will do this, it is the best and most conclusive argument of desirability of real estate in St. Louis as a safe investment.

The Missouri code of laws covering the conveyance of property, the collection of revenue and the foreclosure or sale in case of default in payment of notes or of taxes, are the simplest and best which are in force in any State of the Union. There are no excessive penalties prescribed in case of default for taxes, but in case of long-continued default, the collector may sue, and if parties interested are properly notified and brought into court, the sale by sheriff will carry a perfect title. Under the system prevailing in Missouri, loans are secured by a deed of trust, instead of a mortgage the notes are transferable by endorsement, and do not require a deed of assignment.

In case of default in the payment of the notes the property may be sold by the trustee named in the deed of trust, upon the request of the holder of the notes, and the deed of the trustee will convey a perfect title; provided of course, that all the proceedings are regular. Under this system, this company is enabled with the large capital it controls, to answer all applications for money promptly, having no outside parties to consult.

These loans are carried by the company, and are offered to investors, accompanied by the guarantee of the J. T. Donovan Real Estate Company.

When it becomes necessary to foreclose, no court proceeding is required. The legal holder of the note has simply to instruct the trustee named in the deed of trust to sell, and the trustee's deed conveys a perfect title.

The system enables a firm of sufficient capital to complete a transaction and hold the notes just as a stock or bond broker holds county bonds or shares, ready for delivery to the investor at any time. The J. T. Donovan Real Estate Company has also a special feature of insisting upon a certificate of title by a reliable abstractor before completing a loan, and this certificate is practically a guarantee that the title is as stated. In addition to this, the J. T.

Donovan Real Estate Company guarantees every investment made by it, and thus puts all question of risk out of the way.

Mr. J. T. Donovan, the president of the Real Estate Company which bears his name, has been engaged in the business for over twenty-eight years, and it is his boast that no one has ever lost a cent of principal or interest by investing money in loans through his firm.

The loans made by the company aggregate nearly a million of dollars per year, and, needless to say, it has done a great deal towards building up the city of St. Louis, as the greater portion of the money loaned was for building purposes. It invites correspondence from foreign investors who wish to buy, sell or loan on St. Louis real estate.

This successful company commenced business in 1865, under the name of D. H. Donovan & Son. Mr. D. H. Donovan died in 1871, and his son, Mr. J. T. Donovan, continued the business under the name of J. T. Donovan & Co. Last year the firm was incorporated with a paid-up capital of \$100,000, the incorporators and present stockholders being Mr. J. T. Donovan and his three sons, J. M. Donovan, D. H. Donovan and F. L. Donovan. The office is in the Polytechnic Building at 700 Chestnut street, the company having the most prominent corner, with fronts both on Seventh and Chestnut streets, right in the heart of what is known in St. Louis as "Realty Row."

The firm carries on a general real estate business, but makes a specialty of loans. The company is applied to almost invariably when a very large sum of money is required for a safe building enterprise, and it is well known that when ample security is offered and the transaction is evidently of a *bona fide* character, almost any amount of money is forthcoming at the shortest notice.

During the year ending May 1st, 1893, the J. T. Donovan Real Estate Company made six hundred and forty-three loans, aggregating \$847,362.

St. Louis has benefited to an enormous extent by the enterprise of the firm and also by the distinctly conservative policy which it has always adopted, and which has done so much to make real estate loans in St. Louis looked upon throughout the entire country as well-nigh as safe as government bonds, and very much more remunerative to the investors.

The company have a well organized office force and attend to all the details of a general real estate business, engaging, however, only in transactions in real estate located in the city or county of Saint Louis.

TRUST COMPANIES.

THE Mississippi Valley Trust Company was organized in October, 1890, with a capital stock of \$1,500,000, and it moved into its present headquarters at 303 North Fourth street, May 1, 1891. Its officers are among the most prominent citizens of St. Louis, and it has from the first enjoyed the fullest possible confidence of Missouri citizens generally. Its president is Mr. Julius S. Walsh, a prominent capitalist; its vice-president, Mr. John D. Perry, treasurer of the Merchants Bridge & Terminal Railway Company, and also a well-known western capitalist; its second vice-president is Mr. John Scullin, president of the Union Depot and Mound City Railway Companies, and the great pioneer in the matter of electricity as a motive power for street railroad rapid transit in the West. The secretary of the company is Mr. Breckinridge Jones, who has given the subject of trust companies his special attention, and who is regarded as an authority on financial questions generally.

The directory of the company is equally strong. It includes Mr. Thos. T. Turner, of the firm of C. H. Turner & Co., one of the first real estate corporations of Missouri; Mr. William F. Nolker, treasurer of the St. Louis Brewing Association; Dr. Thos. O'Reilly, the well-known physician; Mr. Chas. Clark and Mr. D. W. Caruth, both prominent capitalists; Mr. Sam M. Kennard, president of the J. Kennard & Sons Carpet Company, and of the St. Louis Autumnal Festivities Association; Mr. B. F. Hammett, Mr. Chas. H. Bailey and Mr. L. G. McNair, all well-known real estate and financial agents; Mr. B. F. Hobart, president of the Kansas & Texas Coal Company; Mr. Williamson Bacon, treasurer of the Tyler estate; Mr. S. E. Hoffman, president of the Laclede National Bank; Mr. S. R. Francis, vice-president of the D. R. Francis & Bro. Commission Co.; Mr. August B. Ewing, capitalist; Mr. Geo. H. Goddard, manager of the Kansas & Texas Coal Co.; Mr. James Campbell, a leading stock and bond broker, and Mr. August Gehner, president of the German-American Bank.

These gentlemen, with the executive already mentioned, constitute a Board of Directors fully competent to manage the extensive interests of the corporation and to maintain its well-earned reputation in financial circles.

Eastern purchasers of western securities realize the importance of having a western institution of high standing, and familiar with the local surroundings of securities offered, act as trustee, and thereby give its endorsement of the regularity of the issue of western bonds. In New York, Philadelphia and Boston nearly every large corporation has a transfer agent and registers its stocks and bonds. The trust

companies, acting as transfer agent and registrar, have afforded valuable security to dealers in eastern securities by protecting such dealers against over-issues of stocks and bonds, and fraudulent transfers of them. Western investors are beginning to demand a similar protection for western securities. When the name of a trust company such as the "Mississippi Valley" is found as trustee in corporate bonds, or as registrar or transfer agent in connection with stocks and bonds, the investor is assured of the absolute regularity of all those acts connected with such securities that have been transacted under the supervision of the trust company. The water, gas, electric light, street railway, steam railway, mining, manufacturing, real estate and improvement companies of the West should avail themselves of the protection given by a trust company connection in presenting their securities to the public.

In the Eastern States the trust companies are recognized as valuable depositories by the bankers, courts and large corporations. In New York City, while the deposits of national banks are about three and one-half times the capital and surplus of such banks, the deposits of the trust companies are four and one-half times their capital and surplus. In such high estimation are the trust companies held that the stock of the trust companies in New York City has an average market value of about sixty per cent above the book value of the stock of those companies.

The law in Missouri under which the Mississippi Valley Trust Company is operating, gives it the power to execute all trusts of any kind that may be committed to it by individuals, corporations or courts; allows it to act as executor, administrator, curator, guardian, trustee, assignee or depository, without giving bond, or to become sole surety for any individual in either of these trust relations.

Up to 1889, there was no law in Missouri under which trust companies could be profitably conducted. The absence of such companies from St. Louis, when they were so successful in most of the other large cities of this country, attracted much attention. The wealth of the city and the growth of the territory tributary to it offered opportunities of large profit to those who would organize such a company. In 1889, the law as to trust companies was amended, and in response to popular demand, the Mississippi Valley Trust Company was organized.

It is now firmly established in public confidence. To meet the requirements of its growing business, it is now increasing its capital to \$3,000,000, which increase will go into effect on June 15th of this year, at which time it will have a capital of \$3,000,000 and \$600,000 surplus, and will be the strongest financial institution of its kind in the Mississippi valley.

BRICKS.

REFERENCE has been made on preceding pages to the vast activity of St. Louis manufactures in all lines influenced by the building trade. The wholesale building operations of the last few years would in themselves have kept the brick yards of the city hard at work, and when the demand at home is supplemented by large orders from the East and from all cities within easy access, it will be readily understood that the brick business of St. Louis is active from January to December.

St. Louis is the third largest brick-producing city in the country, and if the product of the brick yards situated almost within sight of its limits were added, the position it occupies would be at least second. On the next three pages some record is given of the work and achievements of two of the largest establishments in this line of industry in the world, and a perusal of the history of these houses will give a good insight into the nature of the business.

Visitors to St. Louis can see specimens of home-made brick in the countless new buildings now in course of erection, and of which the last annual report of the local Chamber of Commerce said:

"The great feature of the building industry of the last three years has been the tendency for loftier office and business buildings of a strictly fireproof character, and the year 1892 was marked by extraordinary activity in this direction. Buildings of ten and twelve stories will soon be quite common in the business sections of the city, their number being increased by twenty-six lofty fireproof structures, either completed during the last few months of the year, now in course of construction, or upon which work is to be commenced as soon as the weather breaks.

"Prominent among these is the new Planters House, on Fourth street, opposite the western entrance to the Merchants' Exchange. This building, together with the cost of real estate and equipment, will cost the company which is erecting it about \$2,000,000, of which \$100,000 is contributed by way of bonus by the Autumnal Festivities Association. This will be twelve stories high, with two recessed courts on its Fourth street front. Two blocks further north is the Security Building, also twelve stories high and exceptionally substantial and convenient. Several offices are already occupied, although the building is not yet out of the hands of the inside decorators. The cost of this structure, at a moderate estimate, is \$1,500,000. The Rialto Building, on Fourth and Olive, is also twelve stories high; is first-class in every respect, but does not occupy so much ground. The Wainwright building, on Seventh and Chestnut streets, nine stories high, cost \$600,000, is also barely completed, though a very large number of its offices are occupied by real estate firms and others. The Union Trust Company's Building, on the corner of Seventh and Olive, upon which work has been pushed during much of the severe weather of the winter, will be the loftiest office building in the city, and the estimate of \$1,000,000 for expense is regarded by the trade as very moderate.

"The new Mercantile Club Building, on Seventh and Locust, now nearly completed, will cost half a million dollars, and the new Public Library Building, two blocks further west, just completed, may be placed at the same cost.

"Among the other lofty fireproof buildings either in course of construction or contracts for which have been let, may be mentioned the Imperial Hotel, ten stories high, cost \$1,200,000; the new City Hall,



\$1,500,000; new Union Depot, not less than \$1,000,000; Colonnade Hotel, \$1,000,000; hotel on Seventh, between Olive and Pine, twelve stories, \$1,200,000; Columbia Building, Locust and Eighth, \$300,000; Puritan Building, Locust and Seventh, nine stories, \$150,000, and ten more buildings averaging in height from seven to ten stories, and in cost from \$75,000 to \$300,000."

The City of St. Louis has a special aid to building and to intercourse between builders and makers of building material. This is the Builders' Exchange, which was organized about forty years ago, and consequently is one of the oldest exchanges of its kind in the United States. It has been in active operation all that time, with the exception of two or three years during the late civil war, after which it was immediately reorganized, and it has been a continued success since that time. The Exchange, to-day, is one of the most prosperous in the country, with a good membership, and fine hall and quarters in the Telephone Building, Tenth and Olive streets.

The Builders' Exchange is one of the permanent institutions of the City of St. Louis, and is devoted to the building and material interests of the city, and affords an opportunity to its members and all engaged in the building business to enjoy the great advantage of having a meeting place, elegantly fitted up, in the central part of the city for the transaction of business during business hours.

ANTHONY ITTNER.

ONE of the most important interests in St. Louis is presided over by Mr. Anthony Ittner, whose name is well known throughout the State of Missouri in connection with brickmaking and building. Mr. Ittner has been in business in the city for thirty-five years, and no man has done more during that period to advance the city's interests, and to keep the name of Missouri and St. Louis well before the general public. He has been asked to run for offices of almost every description, and, although he has frequently declined, he has served his fellow citizens in several important capacities. He has occupied the presidential chair of the National Association of Builders, and also of the National Association of Brickmakers, and it is reasonable to assert that he is one of the most prominent builders and bricklayers in the United States.

The Ittners belong to one of the oldest families of the State. In the 50's, Mr. Anthony Ittner started as a builder with his brothers, Conrad S., Martin, Benjamin now deceased, John, Nicholas and George.

The firm was successful from the start, and so much business was obtained that it was finally decided to establish separate firms, and Mr. Anthony Ittner established a firm in partnership with his brother George. He has since been associated with various members of his family, but no one has ever been a partner in the firm who did not bear the name of Ittner. He was one of the first members of the Mechanics' Exchange, now known as the Builders' Exchange. He has been a leading spirit in that institution from the start, and has held the highest offices at its disposal.

In the course of his career Mr. Ittner has taken a prominent part in the erection of some of the largest edifices in Missouri, among which may be named the Southern Hotel, the Lindell Hotel, Exposition Building, the Chamber of Commerce Building, and the Belcher Sugar Refinery, all of St. Louis. His specialty was, of course, the brickwork, and this has stood the test of time marvelously, especially in the case of the Belcher Sugar Refinery, which was the first sky-scraper erected in Missouri, the building standing thirteen stories high.

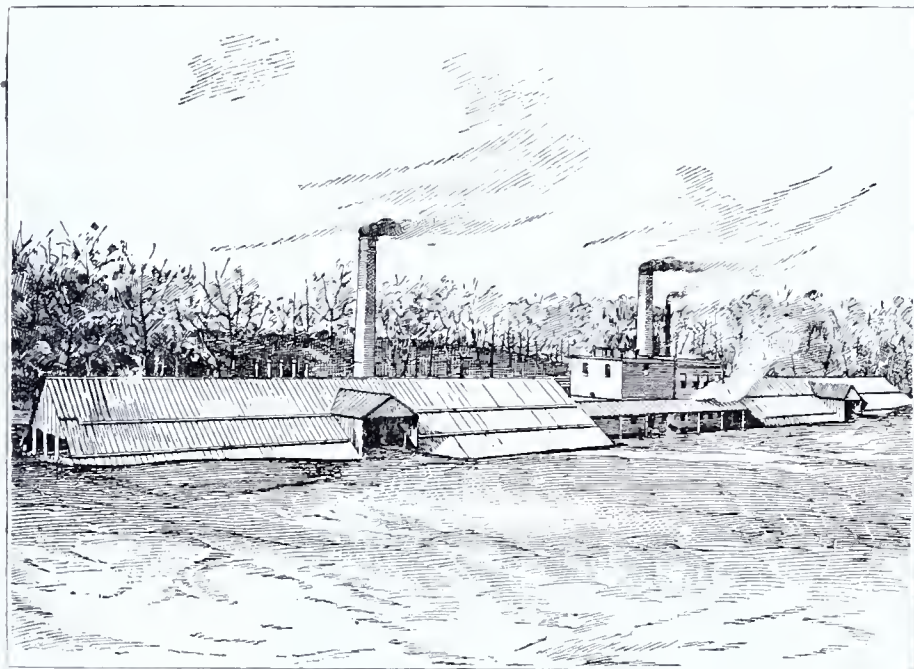
In addition to his activity as a bricklayer and builder, Mr. Ittner has for thirty years operated a clay transforming establishment in conjunction with his building business, and so rapidly has his brick-making connection grown that it has for some years occupied his entire time. It was in 1859 that Mr. Ittner established his first brickyard, the site being on Eighteenth street, between Gratiot and Papin. He started on a large scale, and manufactured 10,000,000 bricks the first year. In 1870 the plant proved to be inadequate to its demands, and more commodious quarters were obtained on Park and Ewing avenues. Success followed the great brick-maker, and in 1876 another move was necessary, and Mr. Ittner secured the exceptionally well-located

strip of land at California avenue and Sidney street, where he moved his entire plant. He erected an entirely new set of buildings, at a cost of \$40,000, put in a complete outfit of new machinery, and then started the new plant. It has been running steadily ever since, and turns out fifteen million bricks a year



regularly. It was in 1890 that Mr. Ittner decided to give his entire attention to brickmaking, and his first step was to enlarge his plant considerably. Seeing it was impossible to extend the Sidney street establishment to the extent desired, he crossed the river and purchased seventy-three acres of very suitable land on the line of the L. & N. Railroad, one and a half miles this side of Belleville. Without delay he commenced erecting what was destined to be one of the finest brickmaking plants in America, and within a few months the once barren tract became adorned with a costly manufacturing plant not to be duplicated anywhere. He fitted up the engine and boiler-houses with first-class Hamilton-Corliss engines, and put in eight patent down-and-up draught Alsip kilns, as well as several of Andrus dry clay pressed brick machines. After expending \$100,000 in the equipment, a staff of men were engaged, and work commenced. The plant has been kept hard at work ever since, and now turns out upwards of 12,000,000 bricks annually, making the total output of Mr. Ittner's works 27,000,000. No snide or inferior bricks are manu-

factured, about 10,000,000 of the output being fine pressed bricks, 2,000,000 ornamental, and the remainder a high grade of common building bricks.

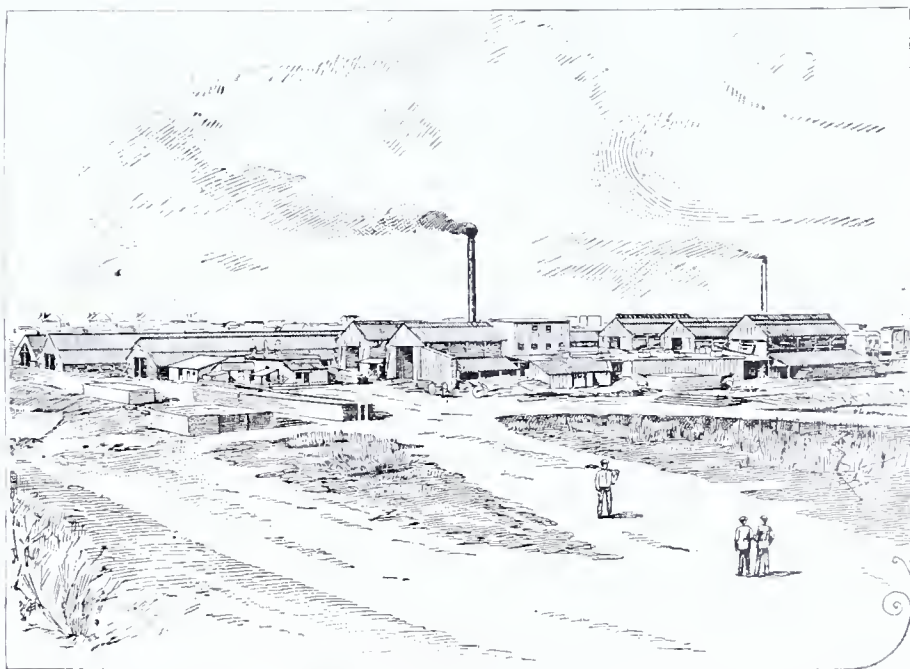


Mr. Ittner was once asked by a friend how it was possible to dispose of 27,000,000 bricks every year, and his answer was that the sales were kept up merely by maintaining the value of the article sold. A visit to the plant and also to large buildings which are being supplied by Ittner brick shows that the pressed bricks have sharp and well-defined angles, and are entirely free from objectionable streaks so frequently seen running through the face of dry clay bricks, and known to the trade as granulation. In color the bricks are a dark cherry red, not excelled by those of any other manufacturer in this country. The dies used are of special pattern of Mr. Ittner. The liners are renewed at a trifling cost and hence they never become sufficiently worn to mar the corners and edges of the bricks, as is frequently the case in bricks turned out from plants where economy is an object. Visitors will also notice with interest the patent revolving upright steel brush pulverizers, which leave the clay loose and flaky, a condition exceptionally favorable for making a solid, uniform, homogeneous brick which under the trowel can be cut into any desired shape without breaking. Besides this the Ittner works are the only dry clay brick works in the United States that harvest and gather the clay in its depth, thus securing a standard, uniform brick the year round.

This is no exaggeration of the exceptional make of the bricks produced at the Ittner works, and it is well known that contractors and architects who have once used them insist on using them in the future. Evens & Tombs, of Boston, who are the company of stone and brick carvers in this country, say: "Although we have had a large experience in brick carving, we do not hesitate to pronounce your brick the best brick for carving purposes that we have ever used." Many builders in Missouri, Illinois, Nebraska, Montana, the Dakotas, Minnesota, Iowa, Indiana, Arkansas, Texas, Louisiana and Mississippi use the brick of the Ittner factories, partly because of their merit and partly because of the ease with which they can obtain shipments of almost any magnitude at short notice. A large stock is always kept on hand from which orders can be filled

in an emergency, and delay or damage in shipping is very rare.

The bricks are all made by the dry clay process, of which Mr. Ittner is an enthusiastic adherent. A strong prejudice formerly existed against this way of making bricks, but it has been overcome by such firms as the one under notice. The immense pressure to which dry clay bricks are subjected during their formation, brings out just the required moisture to make the clay cohere in one solid homogeneous mass.



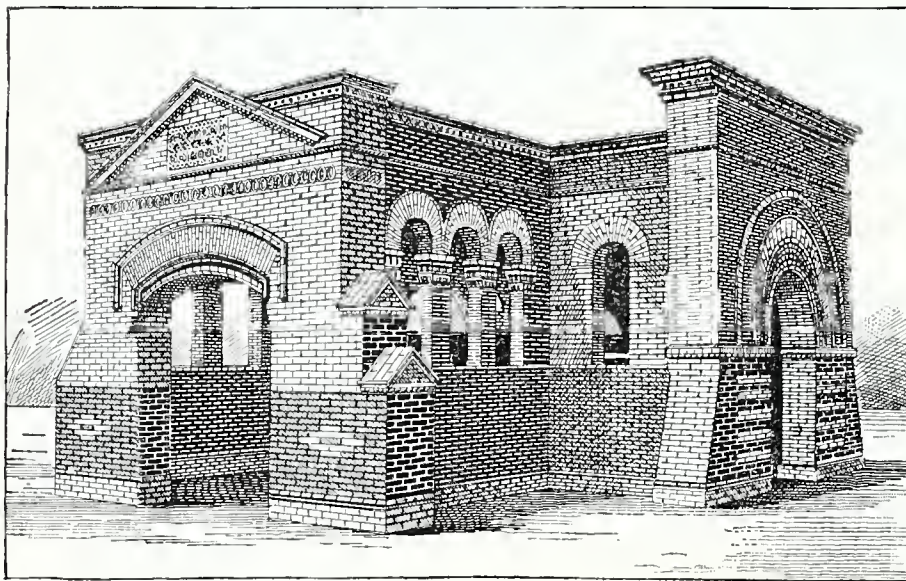
Mr. Ittner believes this is the ideal way of making brick, and his success would seem to indicate that he is correct.

THE HYDRAULIC-PRESS BRICK COMPANY.

ONE of the most striking exhibits in the Manufacturers' and Liberal Arts Building at the World's Columbian Exposition, is that of the Hydraulic-Press Brick Company, of St. Louis. This exhibit is in section "H," on the ground floor very near the center. It is constructed entirely of bricks of various kinds made by the company, and is elaborate in every particular, the idea being to show the different uses to which ornamental, moulded and fancy bricks can be put. The ground floor is in the form of a cross, and the two entrances fronting on different aisles are arched with openings of different designs and built of different colored bricks. Two handsome

The head office of this company is situated in the Odd Fellows' Building, at St. Louis. Branch companies have been established and located in Kansas City; Omaha, Neb.; Chicago; Minneapolis; Findlay, Ohio; Collinsville, Ill.; Washington, D. C., and Philadelphia, Pa. The total annual capacity of all these works is 283,000,000 bricks.

Mention has already been made of the reputation acquired by hydraulic-press bricks in all parts of America. The products are shipped constantly to all parts of the United States, and among some of the very large contracts executed by the company may be mentioned the 500,000 face bricks in the Masonic



mantels, one of buff bricks from the Eastern Hydraulic-Press Brick Company of Philadelphia, and the other of red bricks from the Kansas City Hydraulic-Press Brick Company of Kansas City, form a prominent part of the exhibit, which cost upwards of \$10,000.

Not entirely as an illustration of the prominence of the Hydraulic Companies is this exhibit of interest. It goes a step farther and shows what progress has been made in the science of brick-making within the last quarter of a century.

The Hydraulic-Press Brick Company, of St. Louis, has just celebrated the twenty-fifth anniversary of the establishment of its works in the Missouri capital. It has now six brick yards located in different parts of the city of St. Louis, and these have a joint annual capacity of 140,000,000 bricks.

All of these are made by what is known as the dry-clay process; the company also using hydraulic machinery of its own invention and patented and controlled by it. The patents on the kilns which are used in burning the bricks are also the exclusive property of the company, whose bricks have a reputation which extends to every part of the continent of America. A specialty is made of the finest quality of pressed and ornamental bricks, not only in red, but also in buff, gray, granite, brown and mottled colors.

Temple, at Chicago, and about the same number of bricks used in the Illinois Central Depot. Hundreds of other buildings in the city of the World's Fair have been constructed with bricks from this company's works, and among some of the most conspicuous of these may be mentioned the Pullman Building, on Michigan and Monroe, the Women's Temple, on LaSalle and Adams, and the Tacoma Building, on LaSalle and Madison, the Northern Hotel and many others. More than once very large shipments have been made as far east as New York, as far west as Seattle and Tacoma, as far north as Duluth, and as far south as New Orleans and San Antonio, so that it can be seen that no point in the United States is too far distant to receive attention from this important and ever-growing concern. Not only is the capacity of this company the largest in the world for this class of bricks, but its quality excels all others on account of the excessive pressure brought to bear on the clay by the use of hydraulic presses.

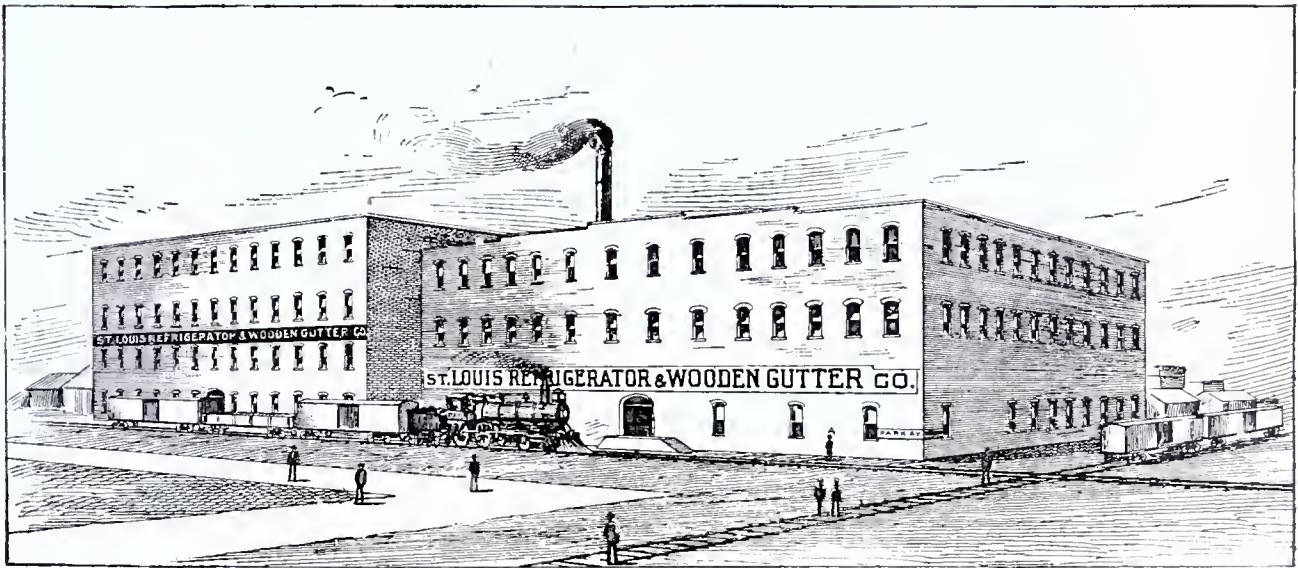
The capital stock of the parent company is \$3,000,000, and upwards of 800 hands are employed. Mr. E. C. Sterling, and Mr. H. W. Eliot, of St. Louis, are respectively president and secretary of the St. Louis or parent company, and also of all the branches in the cities named.

REFRIGERATORS, BICYCLES AND BABY CARRIAGES.

AMONG the large manufacturing establishments of St. Louis is that of the St. Louis Refrigerator and Wooden Gutter Company, which has its planing mills, warerooms and factory at the corner of Main street and Park avenue, and its mills at Gurdon, Hope, Whelan and Arkadelphia, Ark. This establishment was incorporated in the year 1873, and its officers are Mr. O. G. Schulenburg, president and treasurer; Mr. L. Werner, vice-president, and Mr. W. Grayson, secretary and general manager. The magnificent buildings on Main and Park were erected in 1879 at a cost of \$100,000, and the capital embarked in the business exceeds half a million. Upwards of 600 men are employed in the St. Louis factory and about 450 in the Arkansas sawmills, making a total army of employes in excess of 1,000.

The annual sales exceed \$2,000,000 and frequently reach \$3,000,000, shipments being made over the

wash stands, sleighs, hobby horses, wardrobes, tables, toy furniture, bedsteads, cedar chests and kindred articles. The refrigerators of this company have an especially high reputation and are in great demand everywhere. They excel in finish and workmanship and do their work thoroughly and well whether used in private establishments or in large concerns. Its business in this alone is so heavy that an establishment of ordinary dimensions would be kept hard at work without any of the outside lines which are also specialties of the house and which win them very high reputation. The Centennial Refrigerator, made of antique oak with charcoal filling, has stood the test of almost worldwide competition for nearly twenty years and has not yet been equaled by any refrigerator for elegance of design, beauty of finish, economy in the use of ice or dryness in the provision chambers.



entire section of the country known as St. Louis territory, with heavy orders frequently received from distant points in the East and North.

The immense sawmill facilities of this company enable it to fill all orders for lumber with great promptitude. It makes a specialty of Arkansas Yellow Pine, Tennessee Poplar, Gum, Ash, Cedar and Cypress, and enjoys a reputation of being able to supply the highest grades of lumber in each department at prices comparing favorably with those charged for very inferior grades by other houses.

Its unique lumber facilities also enable this company to use the very best material in its manufactures and there are few sights in St. Louis more interesting to the visitor than those to be seen in its factory, where work is constantly going on in the production of such varying commodities as refrigerators, kitchen safes, 'boys' and girls' express wagons, ice chests,

Next to the Refrigerators, the Baby Carriages of this company are probably the most conspicuous of their successes. The carriages are made in an immense number of designs resembling each other only in the excellency of the finish and the uniqueness of the designs. The company's aim has always been to furnish the greatest degree of comfort as well as the highest grade of excellence, and every year witnesses a marked improvement on the triumphs of the one preceding. The German reed bodies perfectly bleached by the new process owned by the company and the perfect upholstering combine to make carriages which cannot be overestimated in value.

The same conscientious aiming at perfection is noticeable in the bicycles, toys, ladies' desks and kitchen furniture produced by this establishment which recognizes no competition in its business.

DIAMONDS, JEWELRY AND SILVERWARES.

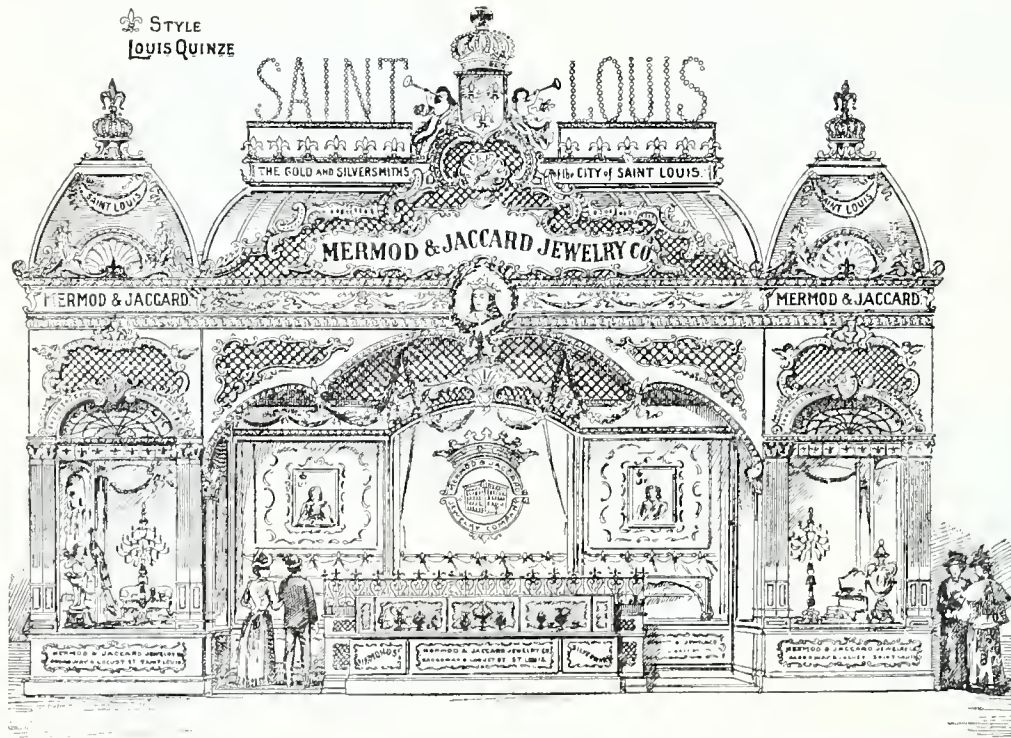
THERE is but one exhibit of Diamonds, Jewelry and Silverware from Missouri, but fortunately the display is so magnificent that it thoroughly exemplifies the culture and refinement of the State and its principal city. The

MERMOD & JACCARD JEWELRY COMPANY,

of St. Louis, which is making the exhibit referred to, has the largest jewelry store in America, this being the verdict not only of Missourians and Western people, but also of visitors from Eastern States and European countries. The firm has revolutionized the jewelry trade of the West, and is entitled to the credit of being the pioneer in the country west of the Mississippi river, in high-class diamond jewelry,

and festooned characters which underlie all that is still regarded as the most beautiful in graceful form and attractive lines in art decoration.

To carry out this beautifully conceived and ideal thought, all the furniture, show cases, draperies, fittings, and even merchandise, are of the characters mentioned. The pavilion is of a truly royal character, worthy in its graceful form and elegant finish to fittingly represent the period of France in which that nation obtained its highest glory. The external decorations are of white and gold with the name "Saint Louis" formed by electric lights so brilliant that the words appear as though written in letters of fire in the sky. The solid silverware and diamonds in the exhibit harmonize with the pavilion, free use having been made of the Fleur-de-lis, Rocco, Pom-



silverwares and society stationery. Its retail department is distinguished by what may be termed an improvement on Oriental splendor, and so much thought and attention are given to this section of the business that the casual visitor is apt to overlook the fact that the house excels quite as much in manufacturing as in retailing.

This exquisite exhibit of Diamonds, Jewelry, Silverwares and Stationery, was designed and produced by this firm expressly for the World's Fair, everything being new and almost exclusively original in thought and design, and its loyalty to its home city is shown by the fact that its entire exhibit is designed to typify Louis IX. of France, the sainted monarch after whom Missouri's leading city was named, and Louis XV., during whose reign the city was founded. The exhibit is an exquisite portrayal of the beautiful style of art which was developed during the period of the "Louis," including the peculiar Heraldic, Rocco, Pompadour, Bowknot, Fleur-de-lis, Ribbon-wreath

padour, Du-Barry, Louis Quinze, and other exquisite designs. It is no exaggeration to say that neither at Paris nor at the Centennial has any firm or city been so majestically represented, nor is there any exhibit in Jackson park which portrays more vividly or delightfully the progress made in Western American art industry.

Even the architectural designs idealize the historical epoch in which St. Louis was founded, and of the exhibit as a whole, it can only be said that it is a poem of color, with varying tones of white and gold, silver and blue, so aesthetically blended and harmonized as to produce an effect which will long remain a pleasing memory with all who are fortunate enough to see it. The great jewelry manufacturing and retail establishment which has shown such almost daring enterprise in making this unique exhibit, has done much to cultivate the love of the beautiful and refined among the people of the city of St. Louis, which city has so much reason to be proud of its great jewelry establishment.

TRADE AND COMMERCE OF KANSAS CITY.

KANSAS CITY, the second largest city in Missouri, has made great strides in its manufacturing, and still greater in its stock yards, packing, and general wholesale and jobbing business. The United States census, taken in 1890, showed an extraordinary increase in the manufactures of the city during the decade covered by the returns. The number of establishments found, the amount of capital invested and the aggregate wages paid were five times as large in 1890 as in 1880. The number of hands employed had increased fourfold, the value of the product showed a gain of 376 per cent, and the cost of materials used of 324 per cent. In other words the manufacturing industry was a mere infant in 1880 and had grown into substantial and vigorous proportions by 1890.

The good work reported in 1890 has been continued since the census returns were published, and the report issued by the Commercial Club shows that during the year ending June 30, 1891, the value of the manufactured product exceeded \$18,000,000, to which must be added upwards of \$58,000,000 from factories in Kansas City, Kan., which is practically a suburb of Kansas City, Mo. The total number of establishments was returned at 542, and these were reported to own real estate worth \$9,000,000, plants worth \$12,000,000, live capital to the extent of \$18,000,000, and to be paying wages to the amount of \$7,000,000 a year.

The largest number of factories was returned under the head of cigars—forty-eight houses, paying \$88,000 in wages and producing cigars valued at \$324,000. The most valuable product was from the four milling establishments, which paid \$85,000 in wages and had an aggregate product of \$1,793,000. In the printing and publishing business, the wages paid amounted to \$780,000, and the product to within a thousand dollars of the sum named for milling. Eight planing mills found employment for 323 men and turned out finished material valued at \$1,100,000. Seven establishments were reported as manufacturing crackers and confectionery, with an aggregate output of \$1,300,000, and the four breweries reported a total product of \$1,100,000. The foundry and machine shops just passed the million mark, and the saddlery and harness establishments nearly reached it.

All these figures are of course entirely dwarfed by the returns from the packing houses, which have made Kansas City famous throughout the entire country. Seven establishments are reported in the returns from which these figures are taken, and they are credited with employing 4,443 men, to whom wages to the amount of \$2,500,000 are paid yearly. The value of the plant is returned as \$6,000,000, with live capital exceeding \$12,000,000. The value of the raw material used during the year named exceeded

\$34,000,000, and the value of the product approximated \$41,000,000.

In writing of the trade and commerce of Kansas City, it is impossible to separate the manufacturing from the wholesale and jobbing interests, the last named being enormous. Kansas City claims an exceptionally large area, including the States of Missouri, Iowa, Nebraska, Kansas, Colorado, Wyoming, Texas and Arkansas, and the Territories of New Mexico, Oklahoma and Indian Territory. The Indian Territory is not included in the subjoined tables, however, except as to area and railway mileage, because its statistics are unavailable. It is from these States and Territories that Kansas City derives its principal support. Kansas City also trades in Montana, Utah, Arizona, Tennessee, Gulf and other States.

Missouri and Iowa are large producers of coal; Missouri, Wyoming, Colorado and New Mexico, of lead and zinc; Missouri, Arkansas and Texas, of timber, and Colorado, Wyoming and New Mexico, of the precious metals, all of which are excluded from the calculations, because of the unavailability of adequate and comparative statistics to show their magnitude and progress of development. The city's territory embraces 30.70 per cent of the United States. It contains 17.67 per cent of population, 12.95 per cent of assessed wealth, 35.06 per cent of horses and mules, 39.51 per cent of cattle, 38.73 per cent of hogs, and 32.12 per cent of sheep. Its usual wheat crop is 20.46 per cent of that of the United States, its corn crop 51.46 per cent, and its oats 43.25 per cent; its railway mileage, all of which, and much more, serves the trade of Kansas City, is 28.82 per cent of the whole. The trade of Kansas City, which rests upon so large a proportion of the population, wealth and productive resources of the United States, is manifestly upon a secure foundation.

Taking the last twenty years as a basis of calculation, it is found that the population of Kansas City increased 61 per cent during the seventies, and 40 per cent during the eighties. Its assessed wealth increased over 20 per cent during the seventies, and just doubled itself during the eighties. Its trade in horses and mules doubled itself during the seventies, and increased 58 per cent during the eighties, showing an increase for the twenty years of over 200 per cent.

The most phenomenal growth was in the live stock and kindred interests. In 1870, the quantity of live stock received was insignificant, compared with the returns now, the increase during the twenty years having been 8,523 per cent. The packing trade, as represented by the number of animals slaughtered, also shows a rate of increase during the twenty years so large as to make ordinary percent-

age calculations practically useless. Thus, between 1870 and 1880 there was an increase of 900 per cent, while between 1870 and 1891 there was an increase of nearly 5,000 per cent. This wholesale growth is reflected in the business in live stock; although the receipts of cattle, sheep and hogs were quite large as long ago as 1870, it is not to be expected that such phenomenal percentage gains could be recorded. Yet, in cattle an increase of 216 per cent was made in the twenty years, and the percentage of gain in both sheep and hogs was even larger.

In wheat, the gain was very large during the 70's, but comparatively small during the 80's, the receipts just doubling themselves in twenty years. Corn did much better, showing an increase of 467 per cent, while in oats the increase was 404 per cent. In grain receipts generally, the extraordinary increase of 3,206 per cent is reported, and there are a number of other equally significant items; for instance, the railroad mileage increased 450 per cent during the twenty years; the general receipts of the post office, 1,000 per cent; the number of pieces handled by carriers, 1,100 per cent, and the bank clearings, 1,600 per cent. The following tables, upon which the calculations are based, are believed to be thoroughly reliable, and will be read with interest by all:

	United States.	Kansas City's Area.
Area, square miles.....	3,025,600	928,855
Population.....	62,622,250	11,067,284
Assessed wealth.....	\$24,249,589,804	\$3,140,092,410
Horses and mules, number.....	16,544,864	5,799,689
Cattle, number.....	52,801,907	20,859,824
Hogs, number.....	51,602,780	19,986,799
Sheep, number.....	44,336,072	14,240,853
Wheat, bushels.....	490,560,000	100,352,000
Corn, bushels.....	2,112,872,000	1,087,382,000
Oats, bushels.....	523,621,000	226,460,000
Railway, miles.....	161,397	46,517

	1870.	1880.	1890.
Population.....	4,846,604	7,850,883	11,067,284
Assessed wealth.....	\$1,290,256,469	\$1,572,791,370	\$3,140,092,410
Horses and mules.....	1,861,044	3,669,750	5,799,689
Cattle.....	6,592,203	12,487,036	20,859,824
Hogs.....	5,986,870	17,148,681	19,986,799
Sheep.....	3,961,150	8,199,671	14,240,853
Wheat.....	50,036,077	93,274,761	100,352,000
Corn.....	191,540,784	702,919,859	1,087,382,000
Oats.....	44,851,082	93,929,239	226,460,000
Railroad—miles.....	8,472	21,950	46,517

STATEMENT SHOWING THE DEVELOPMENT OF KANSAS CITY AND ITS TRADE FOR THREE DECADES.

	1870.	1880.	1890.
Population.....	32,263	65,659	178,544
Assessed wealth.....	\$6,629,455	\$13,378,950	\$92,663,015
Live stock market, number.....	57,827	985,883	4,986,955
Grain market, bushels.....	1,037,000	9,029,935	34,283,400
Packing, number.....	57,009	570,019	2,834,656
Distributive merchandise, trade.....	\$8,748,693	No record	\$147,132,708
Post office receipts (1875)...	\$39,768	\$123,953	\$450,420
Mail matter handled, pieces (1875).....	3,213,359	8,331,347	40,390,443
Bank clearings (1875).....	\$26,013,643	\$54,862,800	\$462,577,380

Mention has already been made of the practically unbounded extent of the live stock interest of Kansas City. The Commercial Club, in writing on this subject, says the live stock interest of Kansas City had its beginning twenty-three years ago, the receipts for the year 1868 being 13,000 hogs and 4,200 cattle. Since that year repeatedly there have been days in which double the above number of cattle and hogs have been brought to this market. To the live stock interest, perhaps more than to any other one industry, Kansas City owes its unparalleled advancement; this business not only keeping pace with other industries, but always being found in the lead. At present, Kansas City occupies the prominent place of being second only to Chicago, which is now the leading live stock market of the world. Kansas City meats and hog products have found their way into every market of the globe, and this interest has more thoroughly advertised the "Gate City of the West" than any other one interest.

Those best informed as to the situation declare that Kansas City will show even greater advancement during the next five years than has been the case during the ten years past. They reason thus, knowing that Kansas City is in the center of the stock-growing district of the United States; it cannot, therefore, be long ere she will occupy the first place as a live stock market, which her geographical position really entitles her to. The latest census returns show that the States of Kansas, Missouri, Nebraska, Iowa, Colorado and Texas, have at present within their borders 19,756,827 head of cattle, 9,472,983 hogs, 6,766,845 sheep and 4,098,564 horses and mules. Upon the above immense herds, droves and flocks, Kansas City has to draw for her supplies. She is the center to which the farmers and feeders in the above States naturally turn as the most desirable market for live stock.

In order to give a better idea of the immense strides taken by this center in the live stock business since 1871, tables are appended showing the comparative receipts. Of these receipts a part were shipped to other markets, which is shown in a table giving the entire annual shipments.

By a comparison of these tables it can be readily seen that the local dressed meat and packing houses have been constantly taking nearer the total receipts each year since this became a live stock market. During the first few years very few cattle were taken from the receipts at this point—only sufficient to supply the local demand; but from the first year the local dressed meat houses have increased their capacity, until at present they supply the Southwest and many of the leading centers all over the United States and foreign countries. A statement of the live stock used by the several houses in this city during the past twenty years is appended, the better to show this increase.

The relations of receipts, shipments and city consumption are illustrated in the diagrams on the following page.

		RECEIPTS.						Per cent inc. 10 yrs. or less.	Per cent inc. 20 yrs. or less.
All Stock	1871	-	.	.	.	.	.		
	1880	—	.	.	.	.	.	489.65	
	1890-91	—	.	.	.	.	.	386.98	2,771.47
		SHIPMENTS.							
All Stock	1871	-	.	.	.	.	.		
	1880	—	.	.	.	.	.	271.56	
	1890-91	—	.	.	.	.	.	355.10	1,590.97
		CITY CONSUMPTION.							
All Stock	1871	-	.	.	.	.	.		
	1880	—	.	.	.	.	.	886.40	
	1890-91	—	.	.	.	.	.	387.17	4,705.42

If the total number of cars of live stock which have been brought to Kansas City were put in a continuous train, this aggregation would reach from Louisville, Kentucky, to San Francisco and back again, and if this train were going at the rate of fifteen miles an hour it would take it fourteen days to pass a given point. The live stock placed in single file would make a living line 39,376 miles long, or reaching one and one-half times around the globe, and proceeding at the uniform rate of four miles an hour it would take the column, traveling day and night, one year and forty-five days to pass a given point.

The largest receipts mentioned in the report for any one day are, cattle, 11,976; calves, 1,520; hogs, 26,408; sheep, 10,486; and horses and mules, 730. The largest number of cars of live stock on any one day is returned at 869, though it is more than probable that this figure has been considerably exceeded since the issue of the report to which the editor is indebted for the bulk of his figures in this chapter.

The following resume of the colossal packing interests of Kansas City, published in the *Kansas City Journal* of January 1st, will show that the figures quoted above do not adequately represent the present importance of this trade:

"This industry, always an active one, was unusually so the past year. A number of important improvements were made in the different plants, and P. D. Armour, of Chicago, united himself more closely with the trade here. Recognizing the manifold advantages of this city as a cattle market, he, during the year, joined his brothers here and put up a \$1,000,000 dressed beef plant, giving employment to 1,600 hands, and with the Armour Packing Company furnishing labor to 5,000 hands, and paying out in wages \$2,000,000 per annum. The buildings put up were solely for beef killing, and number three, of the following dimensions: One 175x500 feet, one 120x150 feet, and one 100x120 feet, covering a floor area of thirteen acres. Combined with the old Armour houses, the total plant now covers eighteen acres and has a floor area of fifty-eight acres, making it the largest packing house in the world. Kingan & Co., Swift & Co., and the Phoenix Packing Company made important additions to their buildings during the year, spending upwards of \$150,000 in increasing their capacity. And with this increase in the capacity of the packing houses came more trade and

more labor, work being given during the year to 1,900 more hands, there being now on the pay rolls of the six packing houses running 8,500 hands. Allowing three to a family, this means direct support to 25,650 people, and indirect support to a good many more. And it is no exaggeration when it is said that the packing industry of Kansas City as it stands to-day, in one form and another, furnishes a livelihood to not less than 35,000 souls.

"There were killed here during the year 672,-783 cattle and 51,428 calves, against 533,156 cattle and 37,605 calves last year, an increase of 139,627 cattle and 13,823 calves; a most vigorous growth, and the most of which was made before the opening of the new Armour plant, which did not get to work until late in the fall.

"Of hogs there were 1,810,099 killed during the year, against 1,995,652 in 1891, a decrease of 185,553—a falling off due solely to the want of hogs, the crop of which was short throughout the entire country tributary to Kansas City. The supply is estimated at many hundred thousands less than in 1891. It is no longer a question of demand with local packers, they standing ready and willing to take care not only of all the hogs that come, but can handle many more than were furnished them the past year.

"In mutton as well as beef more was done the past year than ever before in the history of the trade; 217,493 sheep were killed by packers, against 209,641 in 1891, a gain of 7,852. And as vast as this quantity of meat seems, every pound was sold, and at satisfactory prices. Little new territory was gained during the year, but the old was occupied more fully, the far West and Southeast buying more freely than in any previous year of Kansas City's fresh meats, and a growing trade was had in the Northwest. Much business was done during the year in Minnesota and Wisconsin, and even the Dakotas were given a taste of Kansas City meats.

"But the greatest gain was made in the South, which is looking more every year to Kansas City for its meat supply. Of the new features developed during the year, the most important was the enlargement of the export trade. The admitting of American meats into Germany under government inspection, furnished a new outlet to local packers for their product, and a good many meats were manufactured during the year for that market. It is a trade that promises to grow, and so far has proved to be of a

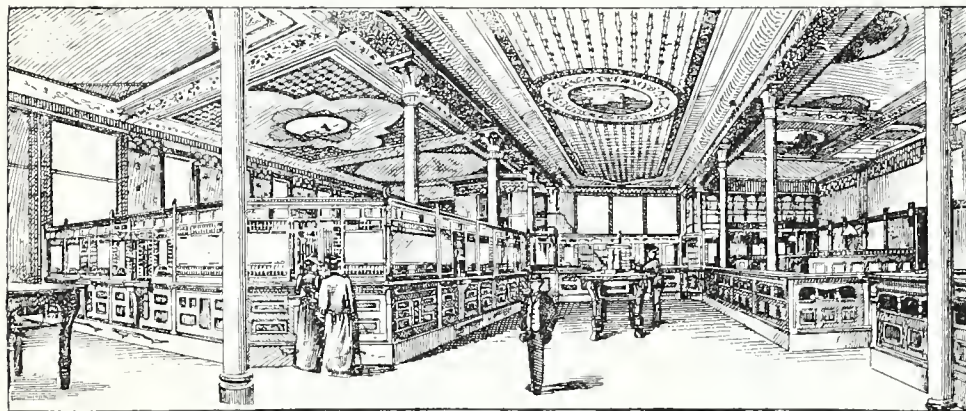
most satisfactory character. With a steady increase in the home population, and the opening of new foreign trade, the outlook of the packing industry here is most promising, and its future growth will be measured solely by the supply of stock coming to market with which to feed our great packing houses."

From the same authority is gleaned the fact that the wholesale and retail business of the city showed a more healthy increase in the year 1892 than in any

financial and business men and is quite a credit to the city.

Among the Kansas City manufacturing interests not enlarged upon above, may be mentioned the production in large quantities of high grades of laundry and toilet soaps. The firm known as the Peet Bros. Manufacturing Company, successor to the Kansas City Soap Co., has extensive offices and works on Armstrong and North Second streets, Kansas

City. Peet Bros. & Co. commenced business twenty-one years ago, and in 1892 the firm was incorporated under the name of the Peet Bros. Manufacturing Company with a capital stock of \$200,000. The company succeeded the firms of Peet Bros. & Co., the Kansas City Soap Co., and the Kansas City Glue and Fertilizer Co., and commenced at once to manufacture on a large scale, soap, glue and fertilizers. The soap



NATIONAL BANK OF KANSAS CITY.

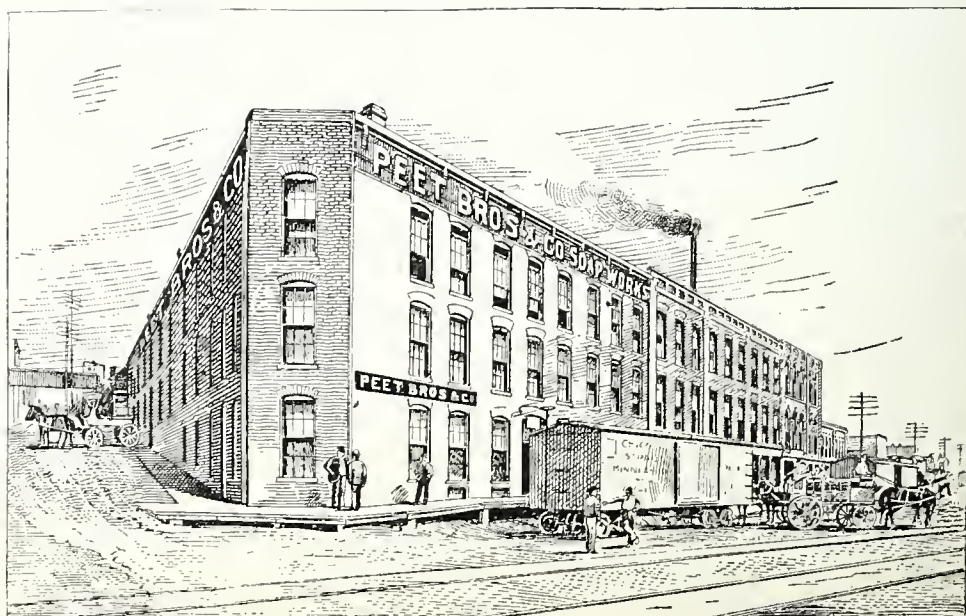
preceding year, which points to the fact that as a great distributing point Kansas City is not only holding its own, but is invading new territory and making for itself new friends in all the important centers reached by the numerous railroads centering in the city.

There are eleven National Banks in Kansas City, with a capital of \$7,800,000 and with surplus and undivided profits amounting to \$1,339,000. There are a large number of very substantial loan and mortgage companies doing business and the financial condition of the city is very satisfactory, especially when the financial difficulties in the East are taken into account. The National Bank of Kansas City may be mentioned as a representative financial institution. Its president is Mr. J. S. Chick; Mr. W. J. Anderson is cashier, and Mr. J. K. Watkins, Jr., assistant cashier; while the board of directors is composed of Mr. J. C. James, H. C. Harper, J. W. L. Slavens, F. K. Hoover, J. S. Chick, W. H. Chick, R. H. Keith, Clem. Studebaker, J. W. Byers, W. J. Anderson, J. K. Watkins, Jr., Chas. Campbell, E. R. Weeks. The resources of this bank on March 6th, 1893, were, loans and discounts, \$3,387,000; cash and government bonds, \$1,727,000, with stocks and bonds, bank buildings and real estate, bringing up the total to \$5,743,000.

The bank enjoys a very enviable reputation among

works are on Delaware street and Levee, Kansas City, Mo., where all kinds of soap, both laundry and toilet, are produced. The glue and fertilizer works are at First and Osage streets, in Kansas City, Kansas, where glue and fertilizers are manufactured, and the output of these two plants is about \$400,000 a year.

The company ships soap in large quantities to all parts of the United States; the soap being sold chiefly in the Western States, while the greater portion of the demand for glue and fertilizers comes from the East. The products of the house are of the very best in their respective lines, and the amount of business transacted is so large that the returns have quite an appreciable effect on the aggregate business of the city.



KANSAS CITY STOCK YARDS.

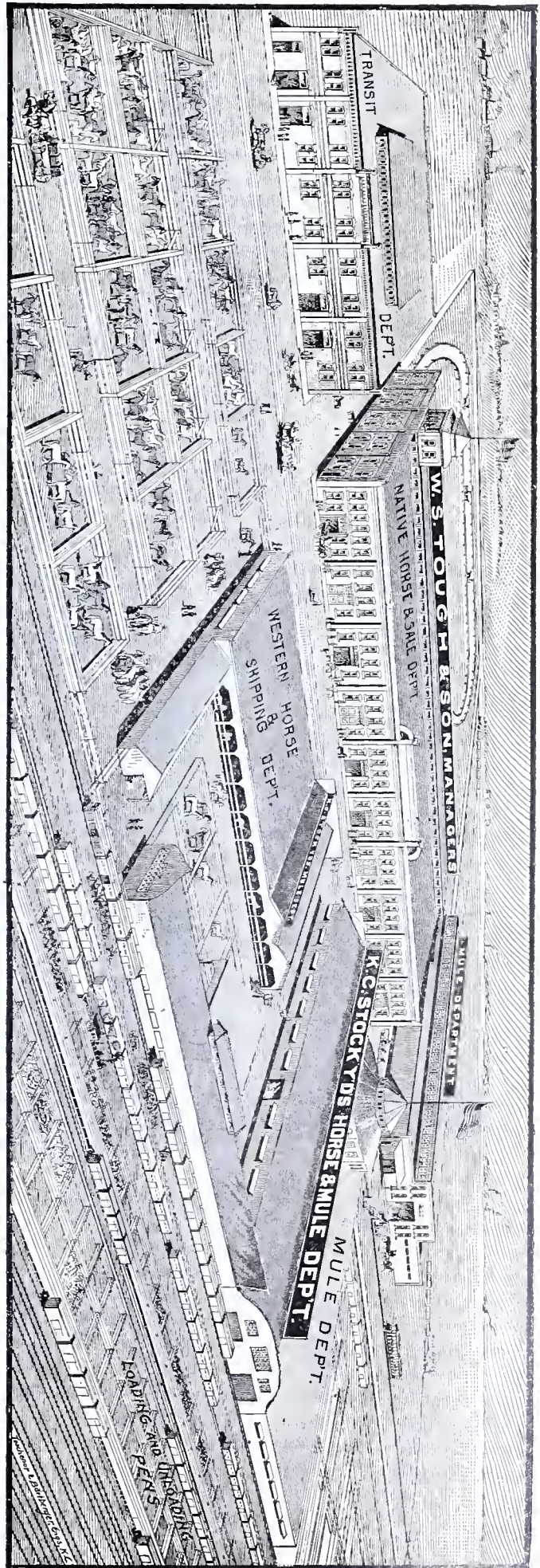
THE live stock trade and interests of Kansas City have given it prominence throughout the entire United States. The excellent railroad facilities of the city and its intimate relations with such well-known cattle-raising States as Missouri, Kansas, Illinois, Arkansas, Iowa, Minnesota, South Dakota, Nebraska and Colorado, to say nothing of a dozen others of almost equal importance have enabled to establish its live stock and packing industries to an extent which may be regarded as remarkable in the extreme. The total number of cattle in the United States last year was returned at 52,000,000, of which 20,000,000, or nearly forty per cent, were found in territory tributary to Kansas City and easily reached from it by several railroads.

The Kansas City Stock Yards were opened in the year 1871, and as now remodeled and rebuilt there are no better yards in the world. They cover a hundred acres and are equipped in the most high-class manner. The hog and sheep pens are double decked and the weighing facilities are so good that trade is conducted with amazing rapidity, and without any of the confusion so frequently found elsewhere. The cattle yards are floored with cypress and the alleys are similarly treated, allowing the most absolute cleanliness to be maintained. Feed and yard charges are kept very low, and the Stock Yards Company is entitled to no small share of credit for the magnificent manner in which this important industry has grown.

The special inducements offered by Kansas City to stock-raisers are good transportation to market, suitable stock yards, trustworthy agents or commission men to handle the stock, and sufficient buying and competition to insure prices as good as can be obtained elsewhere. Added to these considerations must be mentioned low freight rates and admirable service by seventeen leading railways.

A million and a half head of cattle, 2,400,000 hogs, 438,000 sheep, and 32,505 horses and mules were disposed of in these yards in 1892. It will be noticed that the horse and mule business is quite important, although the figures are not quite so large as in some of the other industries. Few stock yards in the country, however, can duplicate such a showing as 32,500 horses and mules handled in one year, nor can the magnificent horse and mule department of these yards, with their store capacity of 2,500 head of horses, and their unlimited pen capacity, be duplicated. The main building is 350x150 feet, two stories high, with one of the best-appointed and largest horse barns in the world.

Kansas City is in the center of the great horse and mule producing district of the United States, and it is the largest market in the world for branded horses. Auctions are held three days a week, and hundreds of animals of all classes are sold on each of these days. Horses are shipped in large numbers to St. Louis, Chicago, Omaha, Indianapolis, Cincinnati, New York and Boston, as well as to a large number of foreign countries, and exceptionally large orders can all be executed without delay.

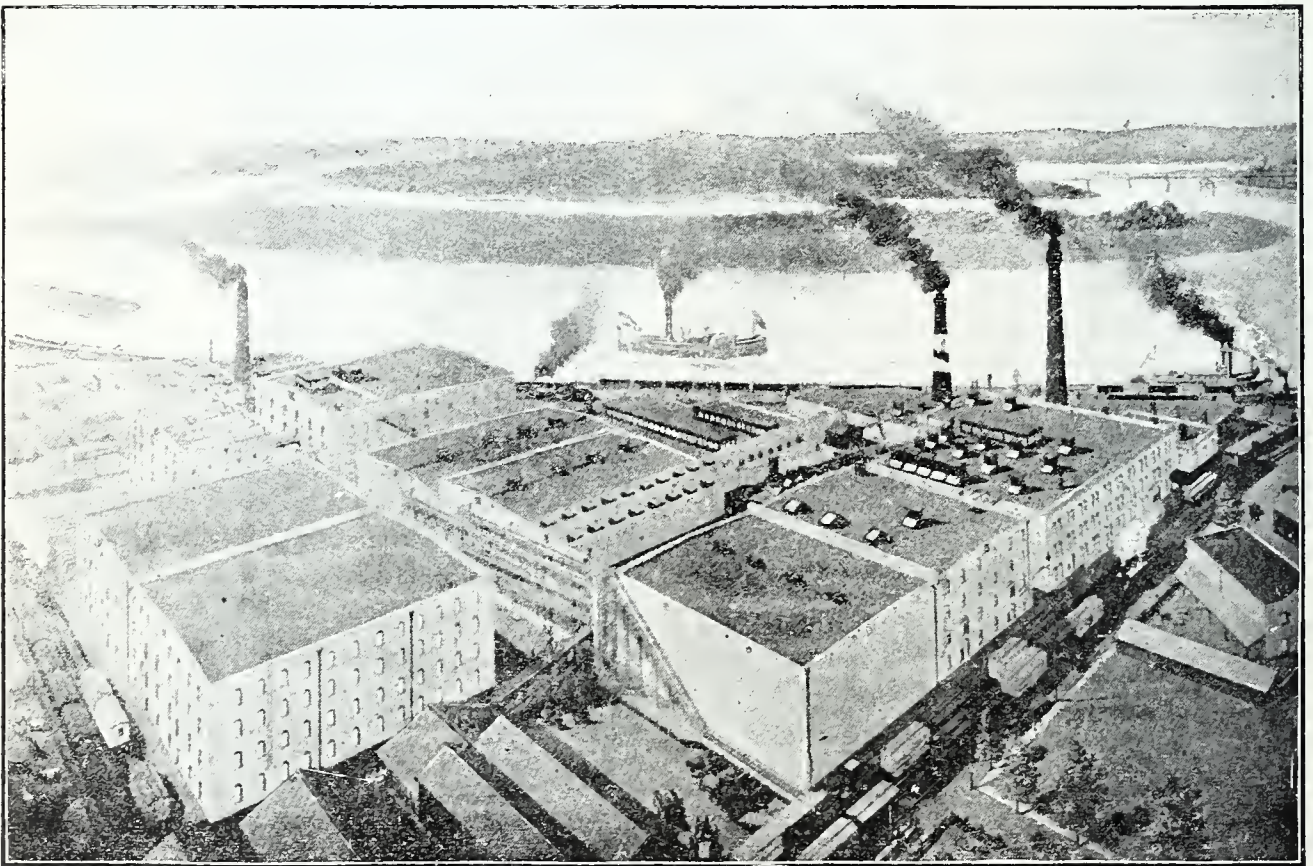


ARMOUR PACKING COMPANY.

NO firm has done more to help the Kansas City Stock Yards to their present position of success and prosperity than the Armour Packing Company, which has been in business in Missouri for about twenty-three years. It was originally established under the firm name of Plankington & Armour, but the name was changed to the Armour Packing Company, November 1, 1884. In March of this year the company became incorporated and still further increased its facilities for carrying on business. The specialties of the house are the packing and curing of beef and pork products; canned meat, Epicurean White Label Soups, Silver Churn Butterine and the like.

An illustration is given of the magnificent packing house and plant of the Armour Company. The area

Armour Packing Company's specialties are not sold. A distinctly Missouri institution, the headquarters of the company are in Kansas City, and it maintains branches at Ashland, Wis.; Duluth, St. Paul and Minneapolis, Minn.; Davenport, Des Moines and Clinton, Iowa; Peoria, Ill.; Atlanta, Augusta, Macon and Savannah, Ga.; Birmingham and Mobile, Ala.; Chattanooga and Knoxville, Tenn.; Asheville and Charlotte, N. C.; Charleston, S. C.; Jacksonville, Fla.; Denver, Colo.; San Francisco, Cal.; Hot Springs, Ark.; New York City and Boston. Each of these carries on a large and constantly increasing business and maintains for Kansas City meat a high reputation. They have also done an immense amount toward advertising the resources and products of the grand old State of Missouri.



ARMOUR PACKING HOUSE.

covered by buildings is thirty acres, and the floor area in these buildings is about ninety acres. The chill room and cold storage area exceeds thirty acres, and the storage capacity of the buildings is in excess of 80,000 tons. Upwards of 3,000 persons are kept in constant employment, and the aggregate wages paid these amount to \$1,675,000 per year. During the year ending March 31st, more than half a million hogs were killed in this establishment, and a quarter million of cattle and some 40,000 sheep. The products of this mammoth concern go to all points of the world, having a large and ready sale in Europe, where they are specially noted for their purity and genuineness. There is scarcely a State in the Union or a portion of the American Continent where the

It is such wholesale work as is done by this establishment which has enabled the stock yards trade to be built up to the splendid position now occupied by it. The development of the pressed meat industry in Kansas City was slow at first, and as late as 1887 it was an infant industry. But in 1888 Kansas City became more fully recognized as the most suitable spot in the country for this work, and in 1890 and 1891 the annual slaughter for this purpose was half a million. The immense increase in the facilities of the Armour Packing Company in 1892 has entirely changed the aspect of the dressed beef trade of the country, and the day is not distant when nearly all the business will be done from this point.

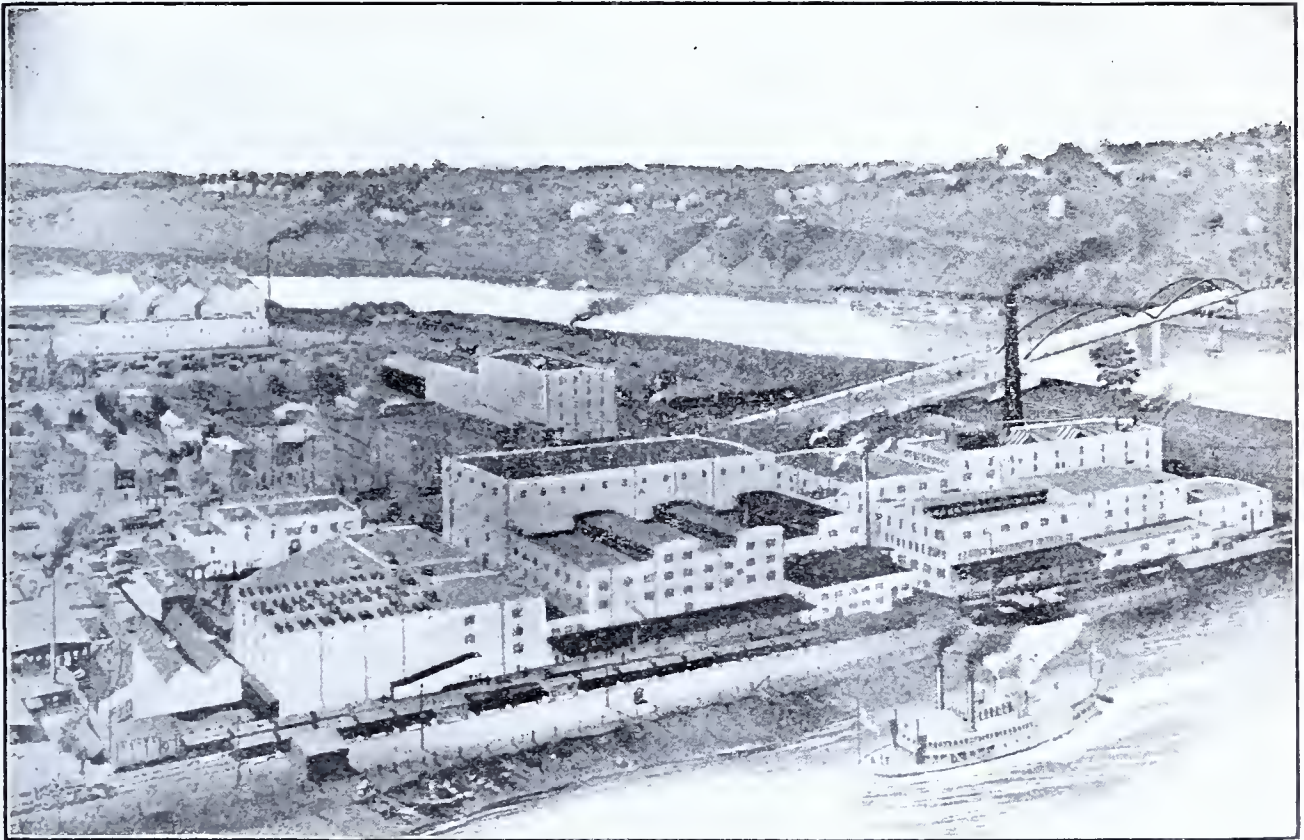
GEO. FOWLER, SON & COMPANY, LIMITED.

THE plant of George Fowler, Son & Company, limited, at Kansas City, is modern in every respect, and has a daily capacity of 6,000 hogs and 500 cattle. It is lighted throughout by electricity, and is one of the finest plants in America. Seven icemaking machines are kept constantly at work, and every modern appliance which has been tried and found serviceable is in use.

The business was established in 1880 and was incorporated four years later. Mr. George A. Fowler is the managing director, and the registered office is at No. 28 Mathew street, Liverpool, England. An office is also maintained at 3600 Produce Exchange, New York, and from here most of the extensive export business is done. The largest sales are in the

every description are packed and sold in large quantities and the Pineapple brands of meats and lard are so popular that every one who is familiar with the business appreciates them. The demand for these specialties is so large that the resources of the great establishment are frequently taxed to the utmost and short time is something very seldom ever dreamt of.

It is difficult to estimate or appreciate the influence an establishment of this kind exercises over a city, and Kansas City owes much of its prosperity and growth to such houses as that of George Fowler, Son & Co. It now does more business than the entire stock yards handled but a few years ago, and no great array of figures are necessary to prove this. Thus, the capacity of the plant is 6,000 hogs daily,



GEO. FOWLER, SON & COMPANY'S PACKING HOUSE.

United States and Great Britain, in which latter country the Fowler brand is justly regarded as of great value and as a guarantee which cannot be questioned. Large shipments are also made to other parts of Europe, notably Germany, while Cuba and Mexico also send in large orders, and there is no part of the civilized world to which shipments are not made from time to time.

To supply the demand which the excellence of the meats and other specialties has created and maintained, upwards of 1,000 men are kept constantly at work, and the very best workmen only are employed in the packing house.

To mention in detail the specialties of this enormous concern would be equivalent to writing an article on the packing houses generally. Meats of

and twenty years ago that number of hogs were not received at the stock yards in the course of two weeks. The certainty of a good market with excellent prices for high-grade stock has made the business grow until now two and a half million hogs are handled every year at the yards without the slightest difficulty.

The same remark applies to cattle. When Fowler, Son & Co. opened up business in Kansas City the annual receipts at the stock yards were only 244,000, and the multiplying of this total by six in twice as many years is an achievement of which Missouri as well as Kansas City is justly proud. The packing house illustrated on this page is entitled to no small share of credit for this work and the growth of the company and of the stock yards is certain to go on hand in hand.

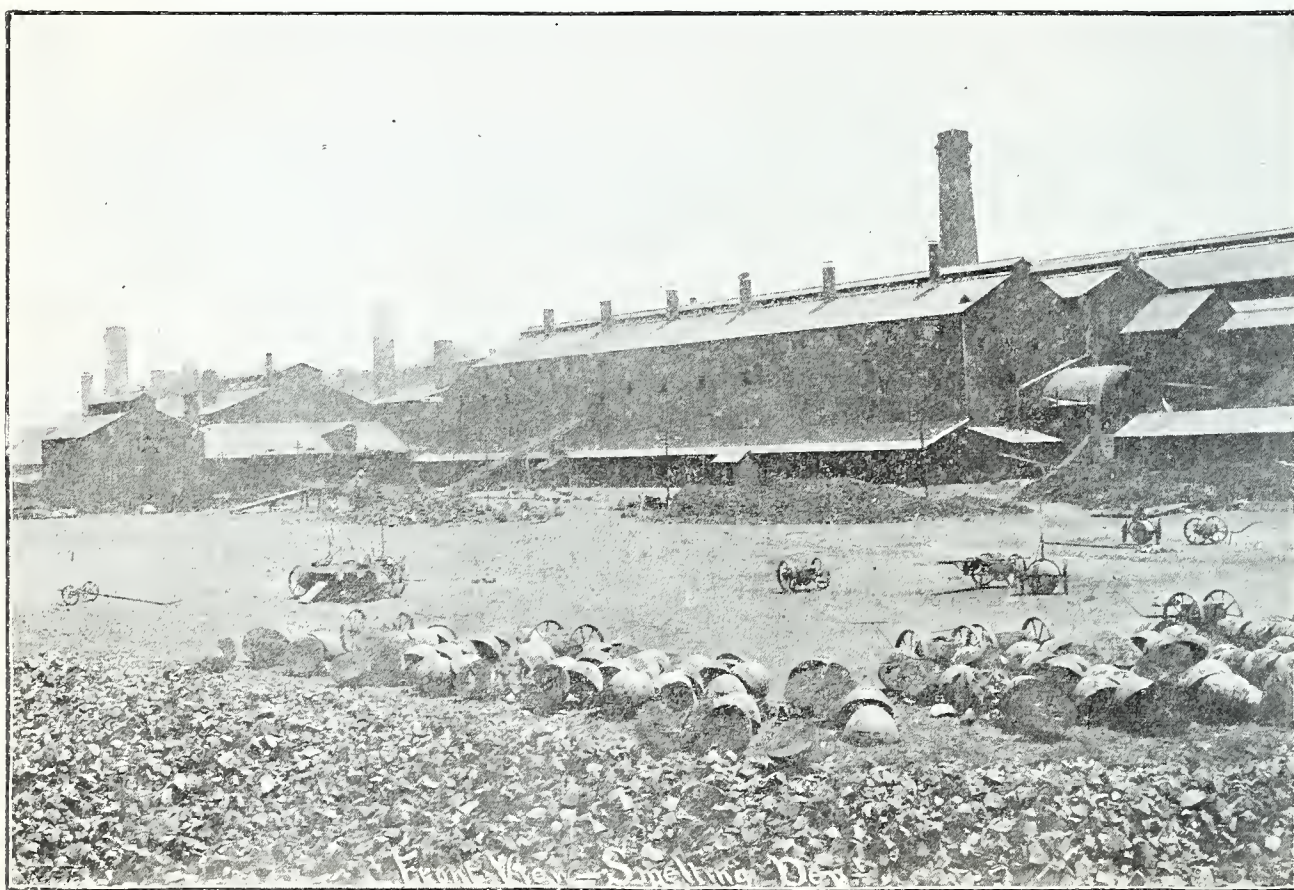
SMELTING AND REFINING COMPANY.

THE Consolidated Kansas City Smelting and Refining Company is a corporation organized under the laws of the State of New York, and employs a capital in stock and bonds of \$3,500,000. The corporation, considering its entire field of operations and scope, is the largest institution of its kind in the world. The business of the company covers all the operations from the mining of the ores to the production of finished metals.

The company is the owner of extensive lead and silver mines in the Republic of Mexico and in the Territory of New Mexico. From these mines is derived a large product of ores especially adapted to the needs of the company, and by virtue of the production of these ores the company's business is given great stability and regularity.

dance of raw material. The ores smelted at these three establishments produce lead bullion and matte containing lead, copper and precious metals. Both of these materials are shipped to Argentine, Kan., where, at the extensive refining works, the metals are turned out in finished shape. The refining works cover the refining of copper, lead, silver and gold.

The total number of men employed by the corporation is 2,380; the total tonnage of material freighted during the year 1892 was 425,000 tons; total amount of freight charges paid was \$2,490,000. There are twenty-seven blast furnaces at the three works, with a daily smelting capacity of 1,300 tons of ore, or 40,000 tons per month. The refining works can turn out 4,000 tons of lead, 400 tons of copper and 2,000,000 ounces of silver per month.



The company has three immense smelting works, located respectively at Argentine, Kan.; El Paso, Tex.; Leadville, Colo. The latter works are based primarily upon the very extensive production of ores in Leadville and its immediate vicinity, and they further derive a large supply of material from the Territory of Utah and the State of Nevada. The works at El Paso control the Territories of New Mexico and Arizona, and the entire western half of Mexico.

The smelting works at Argentine, Kan., finally, on account of the numerous railroads centering at Kansas City, reach into every mining section of the United States and Mexico, and, reaching so many sources of supply, are always able to secure an abun-

The product at the Argentine Refining Works, last year, was 30,000 tons of lead, 9,000,000 ounces of silver and 150,000 ounces of gold. This product, while perhaps exceeded by one other smelting works in the world, must be measured by the fact that it is the result of material handled by the corporation from the natural raw material up.

The company is not a purchaser, except to a very limited extent, of crude silver and lead bullion, as is the case with other institutions, but bases its claim of being the greatest establishment of its kind in the world upon the fact that it controls all operations of the industry from the mining of ores to the production of the finished metals.

BULLENE, MOORE, EMERY & COMPANY.

INTIMATELY associated with, and indeed playing an important part in the history and growth of, Kansas City and surrounding country is the well-known house of Bullene, Moore, Emery & Company. Originally established about twenty-nine years ago, when Kansas City in its modest proportions gave but little promise of its future greatness, this concern has never known anything but steady and constant growth and progress; and has, since its inception, deservedly maintained a leading position.

Repeated changes in and additions to its buildings were made, until finally they determined to erect a structure of mammoth proportions, with every modern convenience, and especially adapted to the needs of a large retail house. As a result the magnificent structure, an illustration of which may be seen on this page, was brought into existence and occupied on September 20th, 1890, and a new era of prosperity entered upon. Beyond question, this great emporium is one of the finest in the United States, and for beauty, completeness, and facilities for the accommodation of its immense industry, it is not surpassed by any in the world. The Western people are proud of this fact and show their appreciation in a most substantial way.

On visiting the store, strangers are usually impressed with the fact that it differs from anything they ever saw before. The building is bounded by Grand avenue on the east, Eleventh street on the south, Walnut street on the west, and a wide passageway on the north, where freight is received and the city delivery wagons are loaded. Exclusive of a well-lighted basement under the building, it is six stories high on Walnut street and five on Grand avenue; and its peculiar location gives it the advantage of two ground floors. One of the most unique features is the beautiful arcade, running around the entire frontage of the ground floors, and constructed so that customers may walk around the outside of the store and see the goods shown in the display windows without being compelled to stand on the sidewalk. The seven floors, if spread out as one, would aggregate nearly 200,000 square feet of floorage. Within the building are over two miles of counter

and shelf room; this fact alone will serve to illustrate the stupendous stock of goods the house accommodates. The building is lighted within by incandescent lights from their own private plant, and from the ceiling of the arcade hang numerous arc lights illuminating it by night. The hundreds of windows on all four sides of the store serve to admit floods of light and air, thus making the large rooms most cheerful and pleasant.

A novel and exceedingly useful convenience is the pneumatic tube cash system, consisting of a great number of brass tubes, running from the various departments to one central cashier's office. The air in these tubes is continually being exhausted by a blower operated in the engine rooms, and as the air from without rushes in to fill the vacuum in the tubes a strong current is formed, so powerful in fact that a little round brass box dropped into a tube will travel to the cashier's desk at the rate of about 200 feet per second. The money received on the sale of goods is put in this brass box and sent to the cashier's desk and the change promptly returned by a parallel tube.

By this means

customers are spared from the vexatious delay in waiting for change, which so frequently occurs in large houses.

In addition to all these, many other conveniences have been added to make trading in this wonderful establishment a pleasure. Reception parlors, toilet and retiring rooms, check stands, telegraph and telephone offices, mail boxes and a multitude of other helps in shopping are to be found here. In short, the most advanced and improved modern methods of merchandizing are here exhibited; under one roof are brought together goods from nearly every continent and isle of the sea, and each country finds itself represented in some kind of ware in one or more of its 103 departments, including dry goods, wraps, millinery, shoes, house furnishings, carpets, rugs, curtains, furniture, books, etc.

It is a sight worth coming hundreds of miles to see, and no one should think of leaving the city without being able to say that they had visited this store.



BULLENE, MOORE, EMERY & COMPANY.

JOPLIN.

A TOWN, to become and remain an important commercial center, must have behind it something more than human purpose or design. It must have natural resources and advantages of geographic location.

Joplin, the principal town of Jasper county, is unique among Missouri cities—she has both.

The greatest zinc-producing mines of the State, the richest and most productive known in the world, lie in the southwest portion, in the counties of Jasper, Newton and Lawrence.

Take the map and note in Jasper county where the lines designating the railways cluster thickest. That point locates Joplin. Joplin is the metropolis of the zinc region, the principal distributing point for the ore fields of Southwest Missouri and Southeast Kansas, and for the contiguous territory of the Indian country and of Northwestern Arkansas.

The history of the lead and zinc mining industry of Southwest Missouri is the history of Joplin.

Twenty years ago the town was a straggling mining camp, the temporary home of a few prospectors. To-day, through the development of the ore deposits, it is a rapidly growing, compact and well-built city of 18,000 souls, with advantages and resources so peculiar and so important as to insure permanency to the prosperity which her people enjoy, and to promise a future in which Joplin will not only remain the commercial metropolis of the ore fields, but become the great gateway and base of supplies to the regions lying south and southwest, so rich in natural resources and now so rapidly growing in wealth and population.

Joplin is in the extreme western foothills of the Ozarks, and possesses all the climatic advantages with which that region is so richly endowed. The altitude is 1,200 feet. The climate is unexcelled in all the Southwest. The winters are short and mild. There is neither extreme of heat nor of cold. The mercury seldom falls to zero, and the warmest days of midsummer are succeeded by nights delightfully cool and refreshing. Air and water are free from malarial poisons. All the cereals and fruits common to the latitude are produced in the vicinity and the territory contiguous in abundance.

Joplin is in the very heart of a mining region, but it is an agricultural and a horticultural region as well. It has been aptly said that Jasper county produces fifty-three crops each year, one of grains, and grasses and fruits, and fifty-two of ore. Joplin is builded upon such resources of climate, soil and mineral deposits.

Joplin was incorporated in 1871. The following statement, prepared by a committee of citizens and verified and vouched for by the Joplin Club, the representative social and business organization of the city, sets forth briefly the progress made in the first twenty years of the city's history:

Population of the city of Joplin, 1891...	17,389
Corporate area of the city in square miles.....	12.5
Corporate dimension, 3.5 miles by 3.5 miles	
Number of miles of streets in city limits	71
Number of miles of macadamized streets in city.....	45
Number of miles of sidewalks.....	35
Number of miles of electric street railway.....	8
Number of miles of water mains.....	26
Number of miles of gas mains.....	13
Number of miles of electric light wire..	135
Number of miles of railway in corporate limits.....	31
Number of miles of sewer mains.....	5
Number of telephone subscribers.....	153
Number of wholesale houses.....	14
Number of retail houses.....	314
Number of manufactories.....	22
Number of flour mills (capacity 475 barrels per day).....	2
Number of high schools (cost \$40,000)...	2
Number of ward schools.....	11
Number of school children in city.....	5,263
Number of churches.....	12
Number of business colleges.....	1
Number of police courts.....	1
Number of justice of the peace courts..	3
Number of circuit courts.....	1
Number of opera houses.....	2
Number of daily papers.....	3
Number of railways	6
Number of cars unloaded at Joplin in 1891 (15 tons each).....	17,159
Number of cars loaded and billed from Joplin in 1891 (15 tons each).....	8,203
Checks paid by the four banks of Joplin in 1891	\$21,353,722 89
Exchange issued by the four banks of Joplin in 1891.....	7,389,615 65
Appropriated for city building.....	20,000 00
Appropriated for additions to ward schools	20,000 00
Catholic school—Academy of Our Lady of Mercy—cost.....	21,500 00
Receipts of city post office for twelve months ending December 31, 1891..	13,995 62

Since the above exhibit was compiled, Joplin has made material advance along all the lines of progress.

A study of the map will reveal the fact that Joplin has a large territory naturally tributary to it. Kansas City is 168 miles north, and St. Louis is 333 miles, by rail, east; Wichita is 175 miles west, and Ft. Smith is the only town of importance north of Texarkana, 250 miles south; and within the boundaries of the territory indicated is a population of several hundred thousand. Within a radius of seven miles are the thriving towns of Webb City and Cartersville, with a combined population of 19,000; Galena, Kan., with a population of 4,000, and Oronogo, Rex City, Carl Junction, Lehigh, Zincite, Gregg, Thurman and Sherwood, with populations ranging from a few score to 750.

Joplin lies in the midst of all these towns and mining camps, and is the common point of supply for their people, numbering now more than 30,000.

The population of Jasper county, entire, is now nearly 60,000.

Joplin occupies an admirable site; the ground is high, and excellent drainage is afforded by natural waterways, as well as by a complete system of sewers. The streets and avenues are well graded, have excellent foundations and are macadamized with crushed flint rock from the mines. The city's water supply is drawn from Shoal river, which is fed from springs in the Ozarks; the water is always pure, soft and cold. Its clearness is remarkable.

Incandescent and arc electric lights are furnished by two companies. The Southwestern Company has, at Grand Falls, four miles from the city, one of the largest power plants in the West. This plant provides power for the electric street railway and for mining companies. The public sewers are built upon the separate system and extend to all parts of the city. The fuel supply is inexhaustible.¹ The railways centering in Joplin run through the coal regions of Missouri, Kansas, Arkansas and the Indian Territory. The principal mines are but a short distance away. Extensive limestone quarries are at Carthage and Saginaw, but a few miles distant.

Joplin has the only six-story hotel building in Southwest Missouri, and it is one of the most complete in the State. There are four banks, with a combined capital of nearly a half million dollars, and each has a large surplus. The clearings for 1891, exhibited above, are the best evidence of the volume of their business. Two Building and Loan Associations are aiding greatly in the upbuilding of the city.

Naturally, Joplin is something of a manufacturing center. The branches of the industry, however, are limited in number. They are principally differentiations, so to speak, of the mining industry, as smelteries, white lead works, zinc oxide works and paint works; or such as bear an intimate relation to mine development, as foundries and machine shops. But these are not all. There are three ice plants, flouring mills, wagon and carriage works, cornice works, planing mills, brick works, broom factories, cigar factories, breweries and bottling works. There is an awakened interest in manufacturing, and the industry in Joplin will be greatly developed and diversified in the near future.

Joplin's transportation facilities are not excelled in the Southwest. Five lines of steam railways center in this city—two divisions of the St. Louis & San Francisco, the Joplin division of the Missouri Pacific, the Joplin division of the Kansas City, Ft. Scott & Memphis, and the Kansas City, Pittsburgh & Gulf. Joplin thus has direct connections with all the great transcontinental routes, and with each of the five great systems of the country, except the Eastern, and that is reached through St. Louis and Chicago connections.

The new north and south trunk line, now building from Kansas City to Sabine Pass, on the Gulf, gives Joplin a direct and short route to tide water. It will reduce the cost of transporting her ores and metal products to foreign markets and enable her to

control them. Trains over this line are now running into Joplin, and Sabine Pass will be reached by January 1, 1894.

The Oklahoma Midland road, a charter for which was granted by Congress at its last session, will extend from Joplin into Texas. The projected Bagnell and Chetopa divisions of the Missouri Pacific, and the Minden division, now building, will all begin at Joplin.

In addition to the steam railways, Joplin has an electric road projected, to bring the surrounding towns in closer relation to her. This road will extend to Carthage on the east, and Baxter Springs, Kansas, on the west. It is now completed between Joplin and Webb City and Carterville.

Nothing better illustrates the fact that Joplin is the base of supplies for a large territory than the proportions of her jobbing trade. She has more than twenty wholesale and jobbing houses, and sells groceries, provisions, produce, fruits, lumber, hardware, cigars, paints, varnishes, machinery supplies, mineral waters, whiskies, wines and beer. This trade exceeds a million dollars annually.

Joplin's public schools are her pride. During the past three years \$55,000 have been expended in the building of school houses. The schools are under the superintendency of Dr. R. D. Shannon, for eight years State superintendent of public instruction, and are thoroughly graded and articulated. A graduate's diploma admits the holder to the State University without examination. The Academy of Our Lady of Mercy is a prosperous convent school of excellent reputation.

The number and strength of the churches have increased with the growth of the city. There are three organized Methodist congregations, three Presbyterian, two Baptist, one Congregational, one Episcopal, one Christian, one German Lutheran and one Catholic.

There are three newspapers, two of them dailies; and an active, progressive Public Library Association. Joplin is essentially a mining town, but it has none of the disagreeable characteristics which Western mining camps possess, nor is it cursed with pauper labor. The people are Americans. Cheap labor has never been brought into the district. Mining is carried on under the lease or royalty system. The leases and sub-leases are most generally held by several persons. In this way the miners become mine owners and operators, and profits are thereby more widely distributed. This great number of independent workers relieves the labor market, and hence it is that labor in the Joplin district has always been fairly remunerated. There is no discontented labor, and there are no labor organizations. In intelligence, prosperity, thrift and character, the people of the Joplin mining region will compare favorably with the people of any agricultural region in the United States, and this fact Joplin illustrates and emphasizes.

The taxable wealth of Joplin, as shown by the last assessment, is \$2,177,877, and the rate of taxation for all purposes is \$2.30 on the \$100.

CARTHAGE, THE COUNTY SEAT OF JASPER COUNTY.

JASPER, as a "two-story" county, has become famous for the immense deposits of mineral and stone in its first, or basement, and is also nearly as noted for its horticultural and agricultural products and the climate of the second.

In 1885 it did not have 500 people within its borders, but now it has 60,000, with more miles of railroad, a larger school fund, and larger exports than any other county in the State.

It is the richest and brightest diamond set in the crescent which encircles the western slope of the Ozark range, 1,200 feet above the sea, and is the only county known, which, while having the richest lead and zinc mines in the world, has upon its gently undulating surface the best farming lands for the production of wheat and other grains, fruits and grasses. Numerous never-failing streams of pure spring water flow across its surface from east to west, and upon its native blue grass pastures horses and all kinds of stock thrive equal to any in the blue grass regions of Kentucky.

Winter wheat is one of the great staples, and the sixteen roller-process mills in the county manufacture more flour than is made in any county west of St. Louis and south of Minneapolis.

The winters are short, the summers pleasant. No swamps or stagnant ponds of water breed mosquitoes or malaria, and good health is more "catching" than disease.

This county exported \$5,811,773 worth of products last year, which was \$2,206,554 more than was exported by any other county in Missouri. These figures are reliable, and the facts set forth speak volumes for the county's future wealth and greatness.

Of these exports, \$1,091,646 were for wheat and flour, \$250,240 for stock and hides, \$53,716 for fruits, \$88,210 for stone and lime, \$1,381,795 for zinc ore, and \$1,935,792 for lead, and many of these industries are as yet only partly developed, awaiting the incoming of more labor and capital.

Carthage, the "Beautiful City of Homes," is in the geographical center of Jasper county, is the county seat, and the people have just voted to build a \$100,000 court house out of the famous Carthage stone. It is located on an elevated plateau south of Spring river, 313 miles from St. Louis and 150 miles south of Kansas City.

Its manufacturing interests are represented by four flouring mills, with a capacity of 800 barrels daily; one woolen mill, with 104 looms, or 75,000 yards annually; one clothing factory, running 35 machines; one foundry and machine shop, making a specialty of mining machinery; one fruit and vegetable cannery, with a capacity of 20,000 cans daily; one fruit evaporator, with daily capacity of 500 bushels; two planing, door and sash factories; one plow and four wagon and carriage factories; six lime kilns, combined capacity of 850 barrels daily.

This product is shipped mainly to Kansas, Nebraska, and Texas.

Six marble quarries—one of which shipped upwards of 800 cars of sawed stone to St. Louis in 1892, while three of the others have just fairly started their machinery—with a combined capacity of sawed stone of about 2,000 cars annually. The demand for this stone, with present capacity for furnishing it, cannot be supplied, and there is room for a dozen more plants. The stone, for its quality of finish, durability and beauty, is unsurpassed, and inexhaustible. Many millions of bricks are also manufactured here. One creamery, one pottery and earthen stone works, and one ice and cold storage plant, with a capacity of 50,000 pounds of ice daily.

The city is provided with a city hall building, a water works system with two stand pipes and eighteen miles of mains, two gas plants, one the old coal gas system and the other the Acme incandescent system; one electric light plant; street car line, which will in the near future be converted into an electric system. In the newspaper line, the status of the intelligence of its citizens is shown by the support of three daily, five weekly and four monthly publications. This city, being the financial and commercial center of a large section, prides itself upon three national and two private banking houses, numerous fine hotels, and two hundred and fifty wholesale and retail business houses. The cost and architectural beauty of many of these houses would be a credit to many larger cities.

The country tributary to this city being so richly endowed with raw material, not only of the mines, but also of the agricultural, horticultural and timber products, affords a field for manufactories to convert the raw material into commercial products and commodities and supplies the growing and extensive territory lying at our gate to the west and southwest, namely, Kansas, Indian Territory, Texas, New Mexico, etc., etc. All of this territory is accessible through the different railroads diverging from this city. Among them being the great Missouri Pacific and Santa Fe-Frisco systems, which lines handled in 1892, at this place, nearly 20,000 cars of freights, and sent twelve passenger trains in and out of this city each day.

The social and literary societies of the city are numerous and of a high order. The secret fraternities are well represented, and the Carthage Commercial Club is an incorporated body with nearly 200 members. Sixteen substantial church edifices would indicate the standing of the community on religious matters, while the school property is valued at \$200,000 and consists of a collegiate institute, high school, a central and five ward schools, private academy and business college. The common schools employ forty-four teachers for nine months each year, with a school enumeration of 2,854 pupils.

ST. CHARLES, MISSOURI.

ST. CHARLES, the county seat of St. Charles county, occupies a commanding position on the northern bank of the Missouri river, twenty miles from St. Louis, the metropolis of Missouri, and the same distance from Alton, Ill.

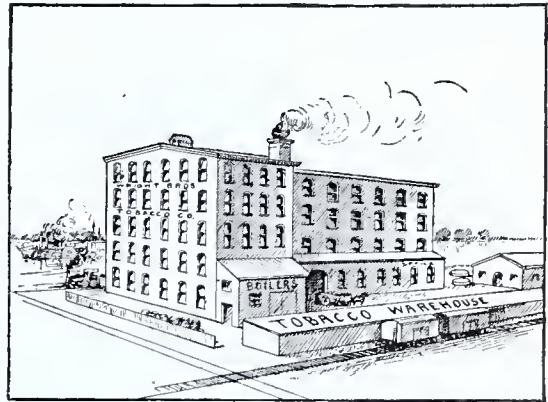
It is one of the oldest settlements in the State, and is surrounded by an exceedingly fertile body of agricultural lands. It is connected with the outside world by the Wabash and Missouri, Kansas & Eastern Railroads, which, with the Missouri river, afford ample means of transportation; the Chicago, Burlington & Quincy and St. Louis, Keokuk & Northwestern Railroads also traverse the county.

St. Charles is admirably adapted for manufacturing establishments; it has quite a number and variety already. It is supplied with water works and gas works, and an electric light plant, and several miles of well macadamized streets. On the high grounds, back from the river, are hundreds of splendid residence sites, which are being occupied by snug cottages and more pretentious houses, and are waiting for many more. St. Charles is having a steady, substantial growth, and there is every indication that it will continue indefinitely. Those looking for a new location are invited to visit St. Charles and look over the ground before deciding as to where they will settle.

THE ST. CHARLES CAR COMPANY,

the leading corporation in the city, has the following officers: W. H. Glasgow, president; Henry B. Denker, vice-president and general manager; Alph Aymond, secretary and treasurer; J. G. Lawler, superintendent freight department; C. F. Rydberg, superintendent coach department. It manufactures

THE WRIGHT BROTHERS TOBACCO COMPANY, of St. Charles, Mo., manufacturers of plug, twist and smoking tobaccos, own one of the most important establishments in the section. They are selling their product in seventeen States and Territories, and their



WRIGHT BROTHERS' TOBACCO FACTORY.

trade is increasing rapidly wherever their goods are known. Samples with prices sent to any dealer upon application. Their leading brands are Reputation, Wright's Bouquet, Jockey, Button, Ace of Hearts, Dixie Twist, Trade, Nancy Hanks, Old Crow and Cob Pipe Smoking.



ST. CHARLES CAR COMPANY.

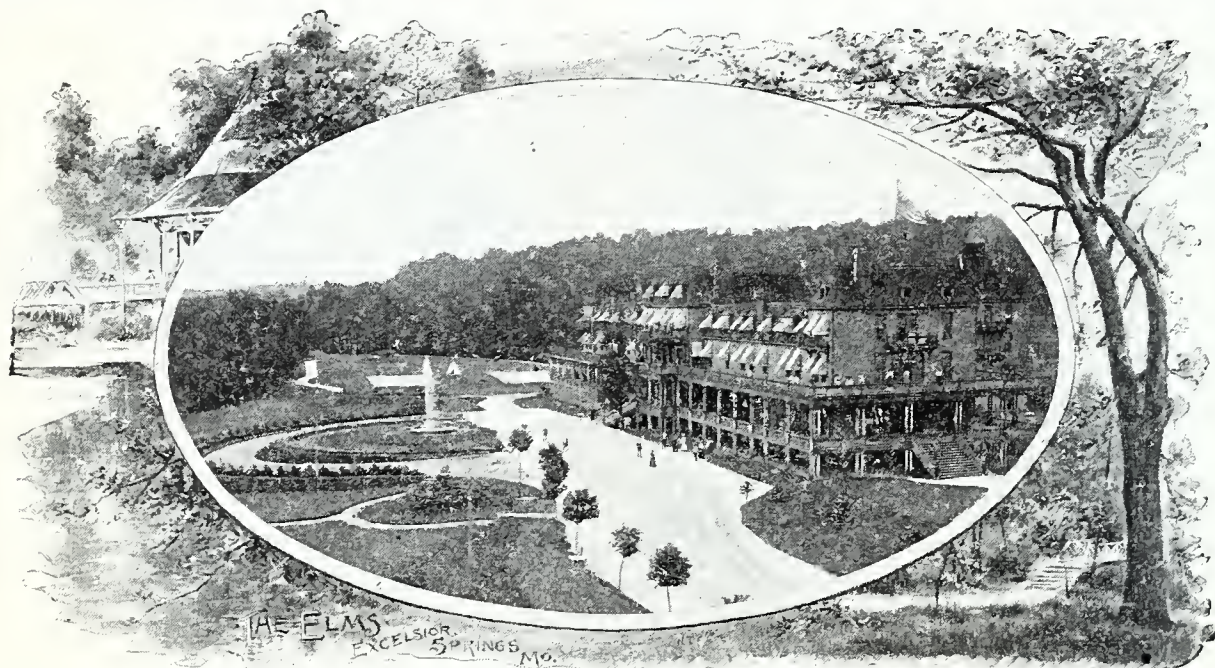
Passenger Coaches, Baggage and Mail Cars, Box Cars, Stock Cars, Ore Cars, Coal Cars, Flat Cars, Logging Cars, Refrigerator, Excursion and Caboose Cars, Hand, Push and Mining Cars, Forgings and Car Wheels, and Castings of every description. This company was organized by the business men

required for use in car building. Their capacity is twenty-five freight cars per day and twenty passenger coaches per month. The annual output of the works is \$3,000,000 for manufactured material. They employ from 1,200 to 1,500 men, their pay roll being between \$40,000 and \$50,000 per month.

EXCELSIOR SPRINGS.

MENTION has been made elsewhere in this work of the curative powers of Mineral Waters found in Missouri. Some of the best of this water is found at Excelsior Springs, about twenty-five miles northeast of Kansas City. The Regent Spring here yields a generous supply of the

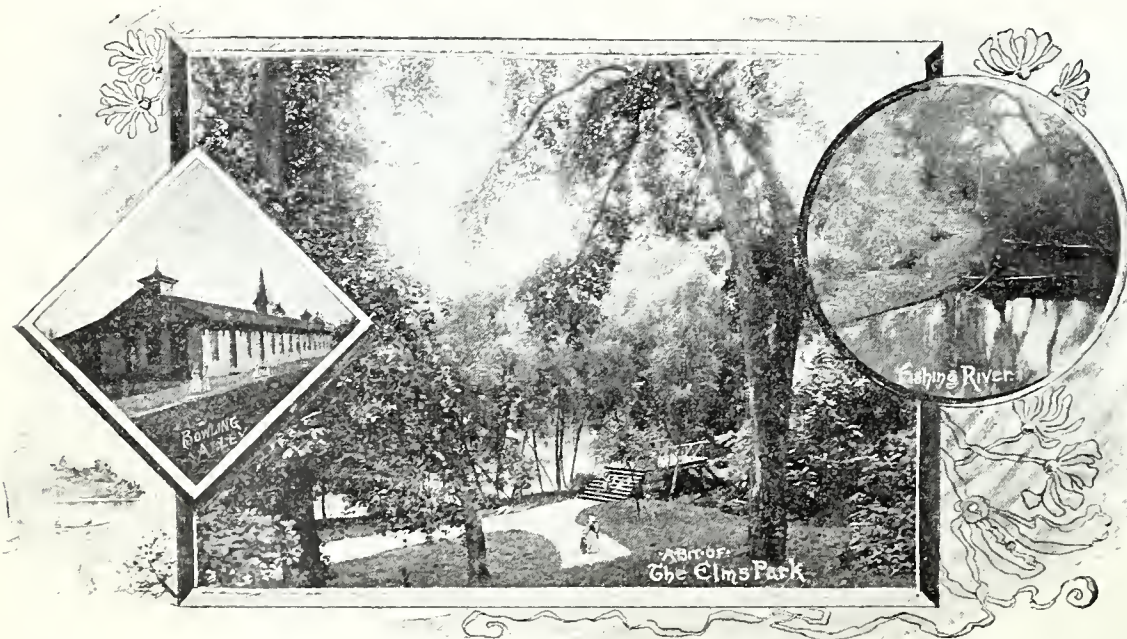
pleasant outing and healthful waters will find both at Excelsior Springs, which is on the Chicago, Milwaukee & St. Paul Railway, an hour's ride from Kansas City. The hotel accommodations are perfect, and the waters of the Springs are absolutely free to all visitors. Few lovelier spots can be found on the



most delightful water, each gallon containing more than four grains of iron bicarbonate and nearly a grain of manganese bicarbonate. Physicians declare the water to be a perfect tonic, and the rapid manner in which sick and overwrought constitutions are restored to health and vigor proves how strictly

correct is their opinion. The Sulpho-Saline spring is one of the few palatable laxative waters in the world. Visitors to the World's Fair in search of a

continent, and the climate, especially during the fall months, is delightful in the extreme. The scenery must be seen to be appreciated. Grand forest trees with shrubbery and vines adorn the valley and present the most delightful contrasts of natural colors that could be imagined. Thousands have been largely induced to visit this beauty spot, partly because of its countless attractions, and also largely because of the very convenient railroad facilities afforded. The Springs can easily be reached from all points via Kansas City, close connections being made



with all trains from both Chicago and St. Louis, including three very luxurious vestibule trains from the former city.

THE STREET CARS OF MISSOURI.

NEARLY every city in Missouri has a good street car service, and every city of average size has an electric car service. It is claimed that the first experiment with electricity as a street car motive power west of the Mississippi river was tried in St. Joseph, in this State, the Union Line being reconstructed in 1888 with electricity. The first attempt was not a great success, the motors used making a great deal of noise and doing very little else. But improvements were rapidly made, and now St. Joseph has a very fine service of electric cars, with considerably in excess of thirty miles of track thus operated. The name "Electric City of Missouri" is claimed for this important jobbing point, which is also the greatest jean producing city in America.

Kansas City is also remarkable for its street railroads, and especially for the engineering difficulties which had to be overcome in the construction of some of the roads. The last official report shows that there were twelve street railroad companies operated wholly in Kansas City, Mo., one road operating exclusively in Kansas City, Kan., and two roads interstate in their operations. The mileage of cable roads in Kansas City, Mo., was 68; of motor, 21; of electric, 12, and of horse, 13. The cable roads had 114 cars in service; the motor, 138; the electric, 22, and the horse cars, 17. The total number of passengers carried in Kansas City, Mo., was 18,317,000, while almost an equal number were conveyed in cars in Kansas City, Kan. Since this return was issued the service has been increased and the slight increase has been made on all figures.

Union, but it is in order to mention that the street railroads of St. Louis are regarded by experts as affording the best general service in the world. Electricity is the favorite motive power, and the number of passengers carried is nearly, if not quite, 100,000,000 a year. A great deal has been said and written about the St. Louis of the past and the new St. Louis of the present, but it is doubtful whether the difference between the two could be more eloquently expressed than by a fair comparison of the street railroad facilities of 1883 and 1893. In the former year horses and mules were used exclusively for hauling cars, and the service was poor in the extreme. Very few roads ran farther than Grand avenue, about three miles from the river, and in consequence a large percentage of the business men in the city were compelled to reside east of that thoroughfare. Now nearly every road runs one, two or three miles west of Grand avenue, while there is no longer a horse or mule seen dragging a street car in the business portion of the city. One cross town road about two miles from the river is still operated by mules, but it is only a connecting line, and even this is shortly to be reconstructed.

The result of the introduction of rapid transit into the great western and southwestern metropolis has been to more than double the traffic on the street railroads in six years. The total number of passengers carried in 1891 was in excess of 80,000,000, while in 1892 it exceeded 90,000,000, and the monthly returns of this year indicate a total for the year in excess of 100,000,000. The following table shows the comparative results for the two past years:

NAMES OF ROADS.	Power.	Miles of Road.	No. of Passengers Carried.	
			1892.	1891.
Baden & St. Louis.....	Horse	3.13	193,144	214,987
Benton & Bellefontaine.....	Electric	9.81	5,072,992	1,765,186
Citizens' Railway.....	Cable	10.95	9,372,125	8,864,232
Cass Avenue R. R.....	Electric	5.03	4,151,592	3,303,856
Fourth St. & Arsenal R. R.....	Horse & Cable	2.96	22,522	433,723
Jefferson Avenue R. R.....	Horse	2.96	1,957,551	1,838,447
Lindell Railway.....	Electric	15.93	12,411,794	10,944,585
Missouri R. R.....	Cable	11.84	14,708,156	13,117,212
Forest Park & Laeclde R. R.....	Electric	5.32	*	433,885
Mound City R. R.....	Electric	3.91	4,484,729	4,143,942
Northern Central R. R.....	Electric	6.56	1,046,508	2,207,705
People's R. R.....	Cable	5.45	4,731,379	4,367,652
St. Louis R. R.....	Cable	8.46	12,301,596	10,811,160
St. Louis & Suburban R. R.....	Electric	9.04	7,037,761	4,027,888
Southern R. R.....	Electric	4.52	4,744,761	4,270,105
Union R. R.....	Electric	6.18	820,497	1,810,270
Union Depot R. R.....	Electric	12.45	9,628,555	8,443,330
Total.....		124.50	91,685,555	80,997,767

*Included with and a part of the Missouri R. R.

Space prevents a detailed account of the progress made in street car matters in all the States of the

Union have only just been changed to electricity.

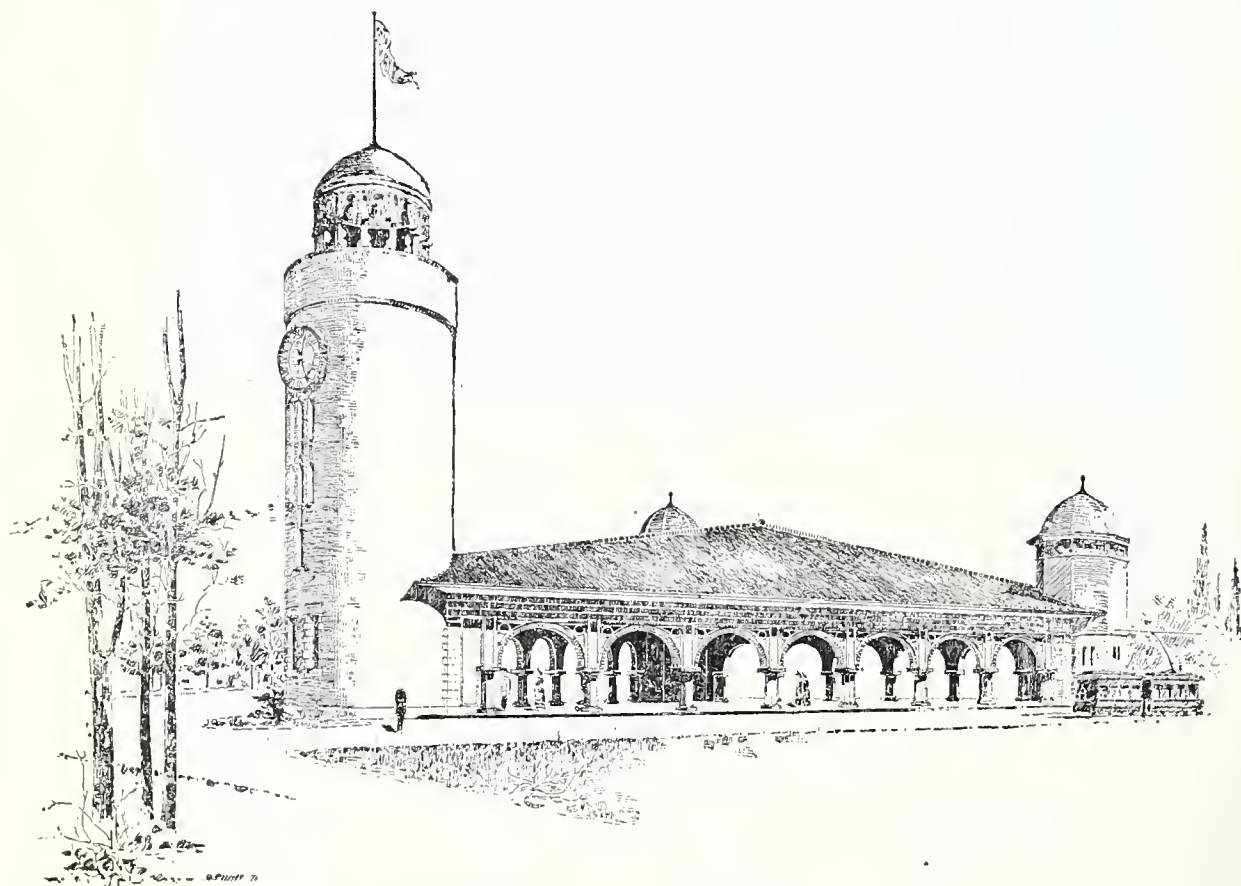
ST. LOUIS & SUBURBAN RAILROAD.

ONE of the most successful electric railroads in the West is the St. Louis & Suburban, which has tracks from the center of the business section through the most prosperous and growing section of St. Louis to the county line, and thence into St. Louis county to the quaint little town of Florissant, remarkable for its beauty and for the very interesting memories and historical reminiscences with which it abounds. The history of this road reads like a record of the success of electricity as a motive power in its competition with the cable, and of the cable in its overthrow of horse and mule traction.

The county section was formerly a narrow-gauge

veyed rapidly and without change of cars or other delays.

Under the new management, the St. Louis & Suburban has prospered, and has attained a position of eminence from which it is not likely to recede. Its influence upon the growth of the city has been simply astounding, for it has caused an immense acreage of territory to be covered with high-class residences and has increased the population of the twenty-eighth, or extreme western, ward to an extent which only those who ride on the line daily can thoroughly appreciate. In the old days of narrow-gauge and cable the trip to the western city limits was long, tedious and dirty, whereas now cars running every



ST. LOUIS & SUBURBAN DEPOT, FOREST PARK.

steam railroad, remarkable neither for the excellence of its accommodations nor for the size of its dividends. In 1885 and 1886 some eastern capitalists purchased the road, and, by means of a cable line, connected it with the down-town section of the great city, to the suburbs only of which it previously ran. The success of that cable road was extraordinary, and until parallel lines adopted rapid transit it made money almost as fast as its cars ran. Then came a period of depression, and the road was practically insolvent, when the St. Louis & Suburban Company was formed by St. Louis and other capitalists, who speedily set to work to reconstruct the entire road from end to end as an electric line, in order that passengers could be con-

two minutes, and sometimes more frequently, complete the journey in forty minutes; better time being made than by any road in the city, as the company owns the right of way over a great portion of the route and hence is not hampered by vehicular traffic.

An illustration is given of the type of passenger cars used on this road. These cars are of the two-truck or eight-wheel kind, and ride so smoothly that the journey in them is restful and pleasant instead of tedious and trying, as is so often the case. In summer they are delightfully cool and comforting, the high speed at which they are run insuring a temperature so much below that recorded by a stationary thermometer in

the shade that thousands of people ride in search of relief from excessive heat.

The fact that the road is the only one in St. Louis which runs out into the county makes

located at convenient intervals along the route, while the influence of the street car mail service has been seen in the expediting of deliveries in the residential section to a most gratifying extent. The company has co-operated with the postal authorities very thoroughly and the service is a perfect success in every respect.

An illustration is also given of the magnificent passenger depot and pavilion which the Company is constructing in Forest Park, and which it reaches by a very short and direct route in connection with its main line. This depot is situated at the Union avenue entrance to the park, adjoining the Zoological department, the boating lakes and the most picturesque portion of what is well described as one of the finest and grandest breathing spots the world has yet seen in a great city.

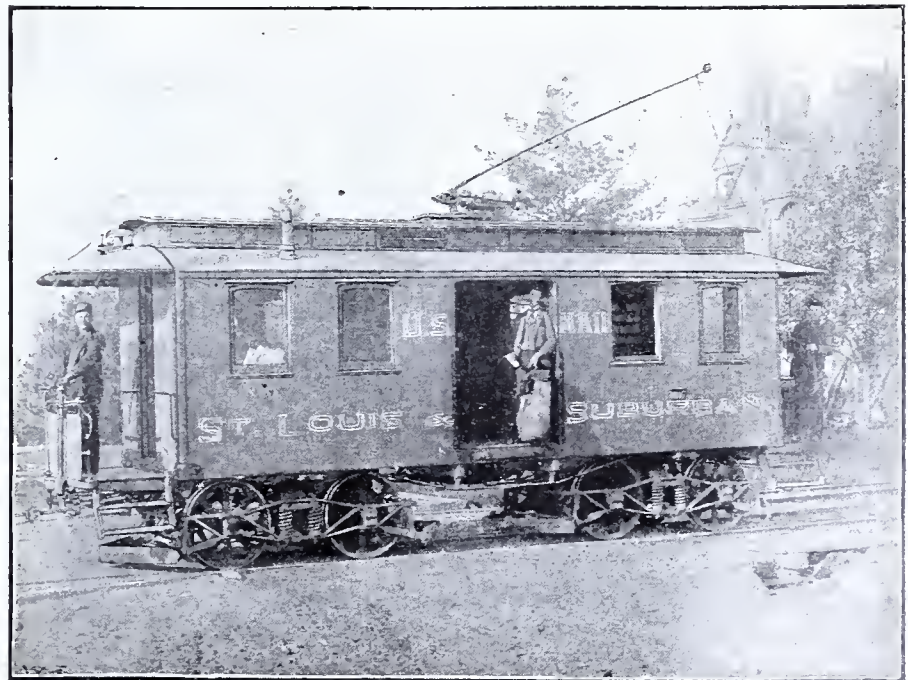
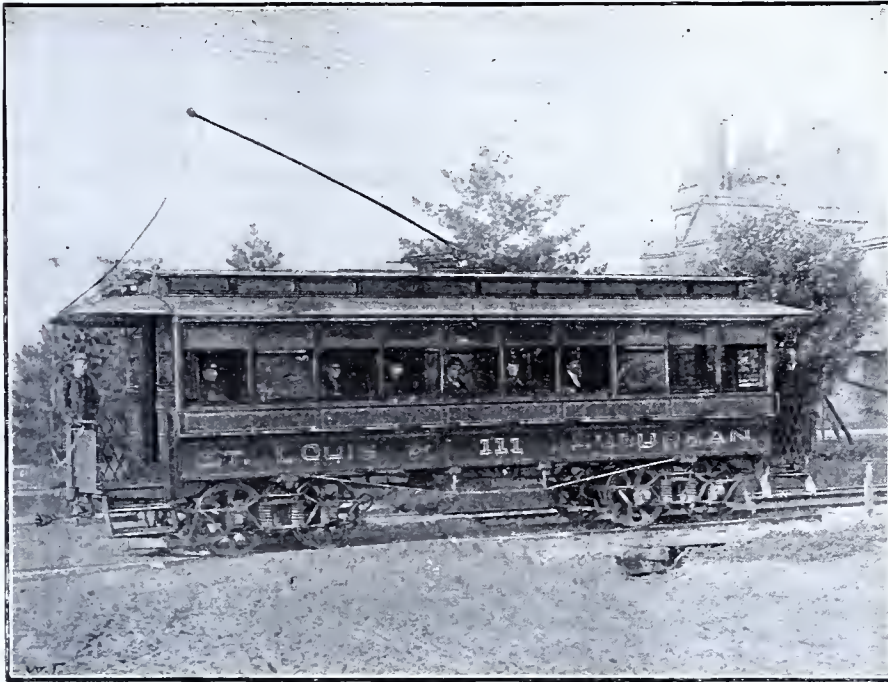
This depot is being constructed regardless of expense, and will be of the greatest convenience to patrons of the road,

it exceptionally popular for excursion and holiday parties. It traverses some of the most picturesque country in the West, and the facilities for sight-seeing are so good that the beauties of the surrounding country are easily appreciated at their full worth. The cars leave the city limits at Wells Station and run through a section of alternate open and timbered country with several elegant country mansions on either side of the track. Picturesque Normandy and Ramona Park and Lake may be cited as two of the most attractive features within short distance of the city, and visitors to St. Louis in search of pleasure and comfort and also desirous of acquiring an idea of the natural beauty of the scenery within a short ride of a great manufacturing city, can scarcely afford missing a trip on one of the magnificent cars on this road.

Another illustration on this page is that of the first United States Mail car ever run on an electric railroad. The St. Louis & Suburban road was selected to make the experiment on account of the extended territory through which it runs. Mail and express matter are carried on this car, and sub-stations are

especially in inclement weather.

Altogether it will be seen that the St. Louis & Suburban Railroad is not only the pioneer in strictly rural electric railroads and in street car postal service, but that it also gives a finer and more complete ser-



vice than would be possible were any other motive power than electricity used, and were the management other than able, enterprising and courteous.

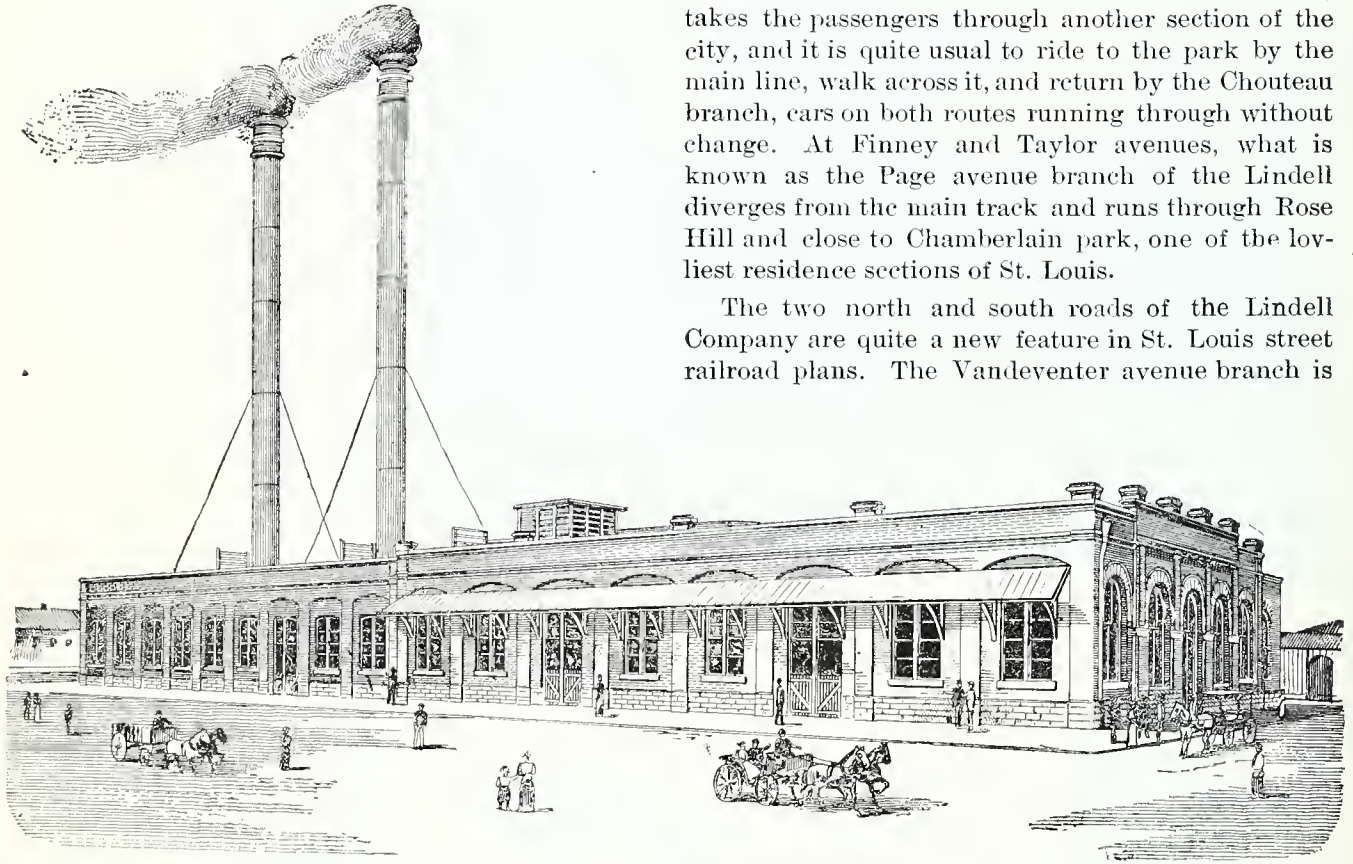
LINDELL RAILWAY.

THE Lindell street railroad system of St. Louis is one of the most extensive and best equipped in the world. It has a total mileage of about

almost invariably ask for the Lindell cars and join in the procession.

The Lindell Company has a second route reaching Forest park with a terminus at the Bates statue. This route, known as the Chouteau avenue line, takes the passengers through another section of the city, and it is quite usual to ride to the park by the main line, walk across it, and return by the Chouteau branch, cars on both routes running through without change. At Finney and Taylor avenues, what is known as the Page avenue branch of the Lindell diverges from the main track and runs through Rose Hill and close to Chamberlain park, one of the loveliest residence sections of St. Louis.

The two north and south roads of the Lindell Company are quite a new feature in St. Louis street railroad plans. The Vandeventer avenue branch is

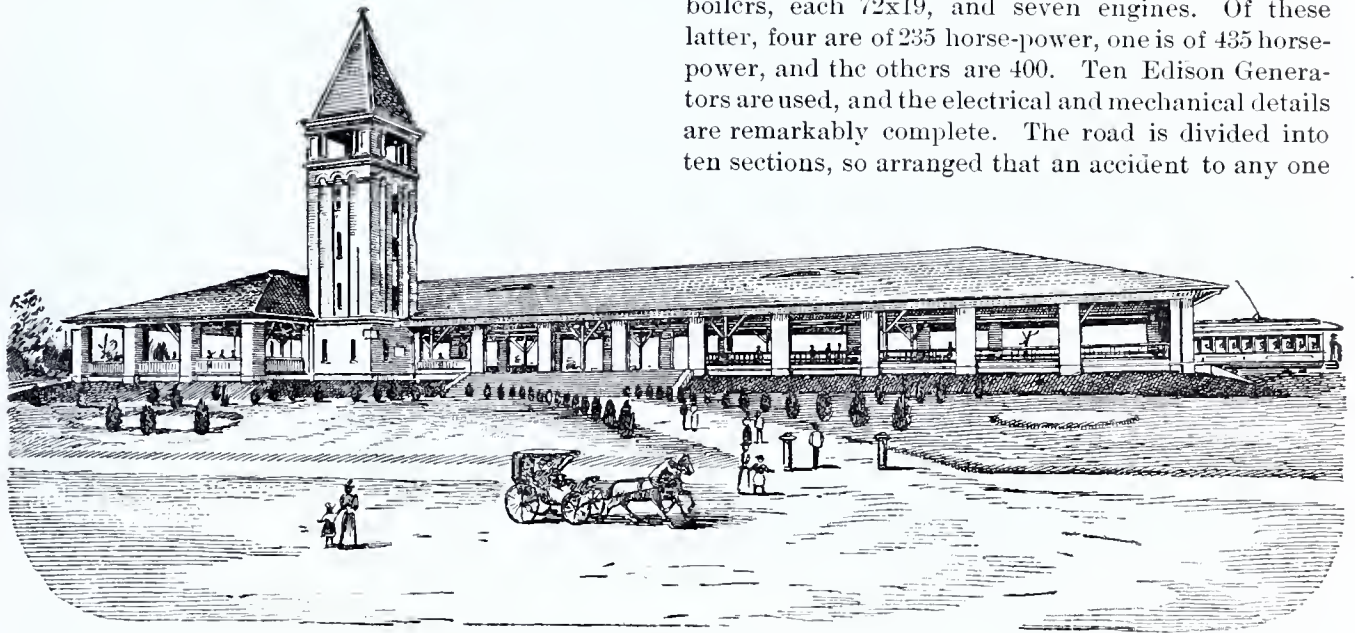


EXTERIOR OF POWER STATION, LINDELL RAILWAY CO., ST. LOUIS.

thirty-three miles, and is now constructing additional track which will bring its mileage considerably past the half century mark. Its down-town terminals are exceptionally good, being at the western approach to the Eads Bridge, where a system of convenient loops has been constructed. From this point passengers are conveyed to almost every quarter of the city. The main line runs west on Washington avenue and continues by an almost direct route on Delmar avenue to Forest park. The company last year erected a magnificent depot and pavilion within the park, spending a large sum of money in excess of the obligations imposed upon it when its franchise was granted. This structure may be described as the finest street railroad depot in America. It is not a cheap shed, but a handsome edifice, which is quite an ornament to the park as well as a source of gratification to visitors. Indeed, it is so popular that the Lindell route to the park is taken almost as a matter of course by parties desiring to visit this delightful recreation ground, and tourists from a distance

of enormous convenience to visitors to the city, because it connects at its southern terminus with the Missouri Pacific and Iron Mountain railroads, and the company has constructed an elegant depot with waiting rooms and all conveniences. Visitors to the city by either of these roads can leave the cars at Vandeventer avenue depot and be taken by the Lindell railway to almost any part of the city for one fare, for be it understood that the Lindell road, having introduced the system of transfers into St. Louis, has made the one fare regime general and carries passengers almost any distance for five cents. The northern terminus of the Vandeventer branch is at the entrance to the new Sportsmen's park, and also to the grand stand entrance to the Fair Grounds. The Lindell road is thus the most convenient for those desiring to attend either races or base ball games from all sections, and indeed it has brought these recreations within reach of hundreds of people who were unable to attend formerly on account of the indifferent transportation facilities.

The other north and south road of the Lindell is on Taylor avenue, and will eventually connect the cemeteries in the northwest with the southwestern sections of the city. Work is in active progress on the Compton Hill branch of the Lindell system, a road which in itself will be one of the most important in St. Louis. Besides using the existing terminal Lindell facilities down town, it will run north as far as the passenger depot in course of construction by the Merchants' Terminal railroad, which it will connect directly with the new Union Depot and with the popular and fashionable Compton Hill suburb. The system will be entirely complete this year, and will be in every respect a credit to St. Louis and also to Missouri.

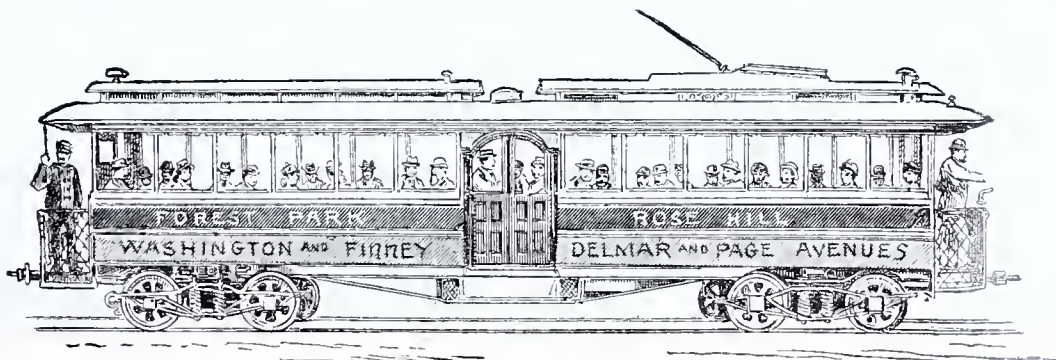


LINDELL RAILWAY PAVILION, FOREST PARK.

The Lindell vestibule car is acknowledged by street railroad men throughout the entire country, to be the best car yet devised. It is constructed on a device patented by the General Manager of the road, and affords easy entrance and exit by means of a vestibule in the center of the car, which is of exceptional length and able to accommodate an immense number of passengers without overcrowding. The equipment is luxurious in every respect, and there is an entire absence of jolting or jarring, no matter

what speed is attained. This vestibule car is the most costly used for street railroad purposes, and it is generally regarded as by far the best and most practical in every respect.

The Lindell Company has the honor of being one of the pioneers in electric railroad work in the West. Over four years ago it ran experimental tracks by aid of electricity, which power is now used exclusively. The power station is located on Compton avenue and Papin street, and on the occasion of the National Electrical Convention held in St. Louis a few months ago, the delegates freely expressed the opinion that it was in every respect a model station, with a number of new features, which they had not noticed in any other city. In the power house are ten steel boilers, each 72x19, and seven engines. Of these latter, four are of 235 horse-power, one is of 435 horse-power, and the others are 400. Ten Edison Generators are used, and the electrical and mechanical details are remarkably complete. The road is divided into ten sections, so arranged that an accident to any one



A LINDELL VESTIBULE CAR.

THE CASS AVENUE, CITIZENS' AND ST. LOUIS SYSTEMS.

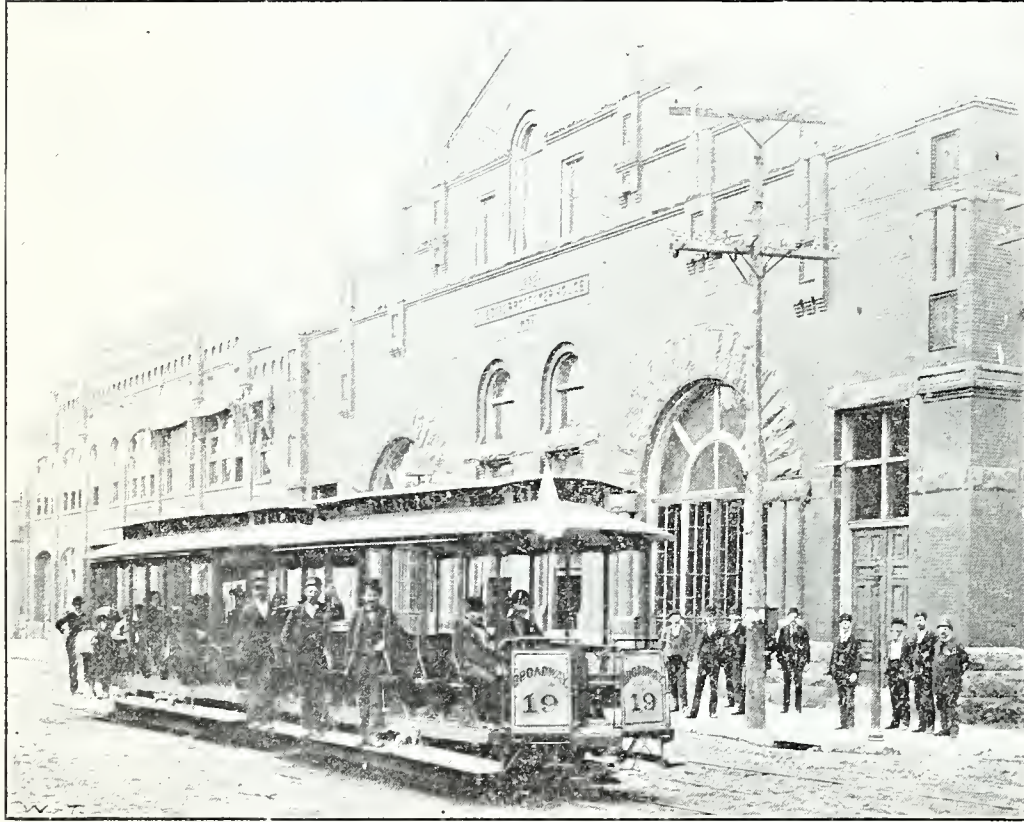
NINE-TENTHS of the visitors to St. Louis go to the Fair Grounds while in the city, some going to see the races and others to witness the great fair which is held at the grounds every

take them near the Federal Building and the principal wholesale sections of the city.

The Northern Central cars of the Cass Avenue system start from the corner of Fourth and Locust streets and run through the picturesque Stoddard addition out to the Fair Grounds, traversing their entire southern front and running some distance farther west. The Union route of this system also starts from Fourth and Locust, but runs by an entirely different route to the northern entrance to the Fair Grounds, a favorite entrance with those who derive pleasure from the live stock and agricultural exhibits.

To operate all three of these roads by means of electricity requires a large amount of power, and an illustration is given on this page of the costly machinery in the power house on Prairie

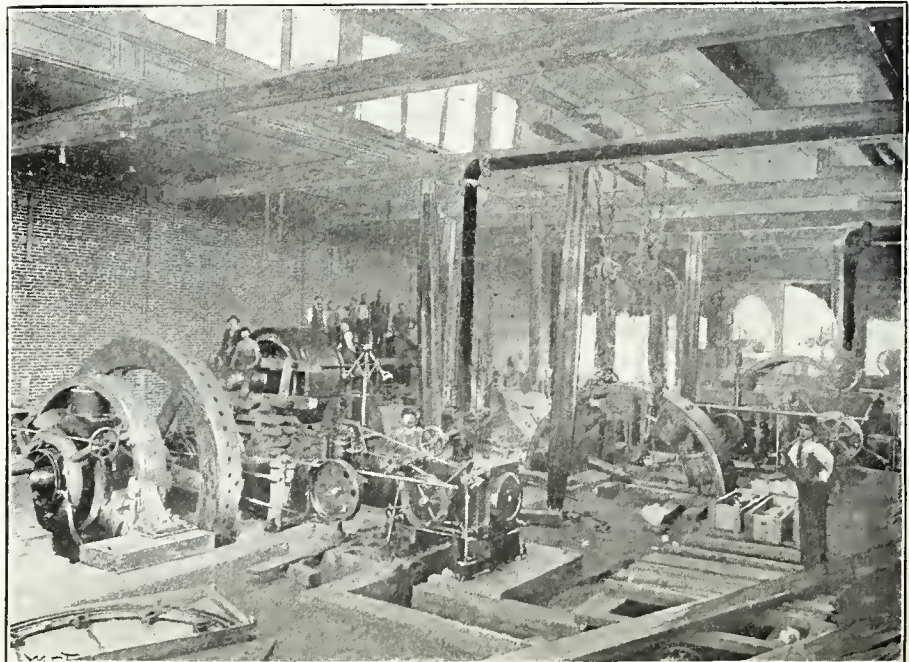
avenue and North Market street, which will operate the entire service. The equipment of the power station and of the roads themselves is of the highest possible



ST. LOUIS RAILROAD POWER HOUSE, NO. 1 BROADWAY AND SALISBURY.

fall. The grounds are easily reached by both cable and electric cars without change, and so excellent is the service that even if the record is beaten this year, and an attendance in excess of 150,000 secured on fair Thursday, the crowds will be taken care of easily.

The Cass Avenue system of railroads affords the most complete electric road service to the Fair Grounds and to the new Sportsman's Park, it having no less than three different routes, each speedy and pleasant. One of these starts from the Southern Hotel and takes passengers by a very direct route up the avenue which gives a name to the system right to the Grand Stand entrance of the Fair Grounds, and this route will, for all practical purposes, prove the most convenient for those who are guests at the Southern, or whose business engagements



CASS AVENUE AND FAIR GROUNDS RAILWAY, INTERIOR OF POWER HOUSE, SHOWING MACHINERY IN PROCESS OF ERECTION.

order, and Capt. McCulloch, the general manager of the system, has studied the requirements of the northwestern section, through which the road runs,

The Grand Avenue cable, another popular route to the Fair Grounds, is part of this system which is operated from a magnificent power house on Easton and Prairie avenues, illustrated herewith.

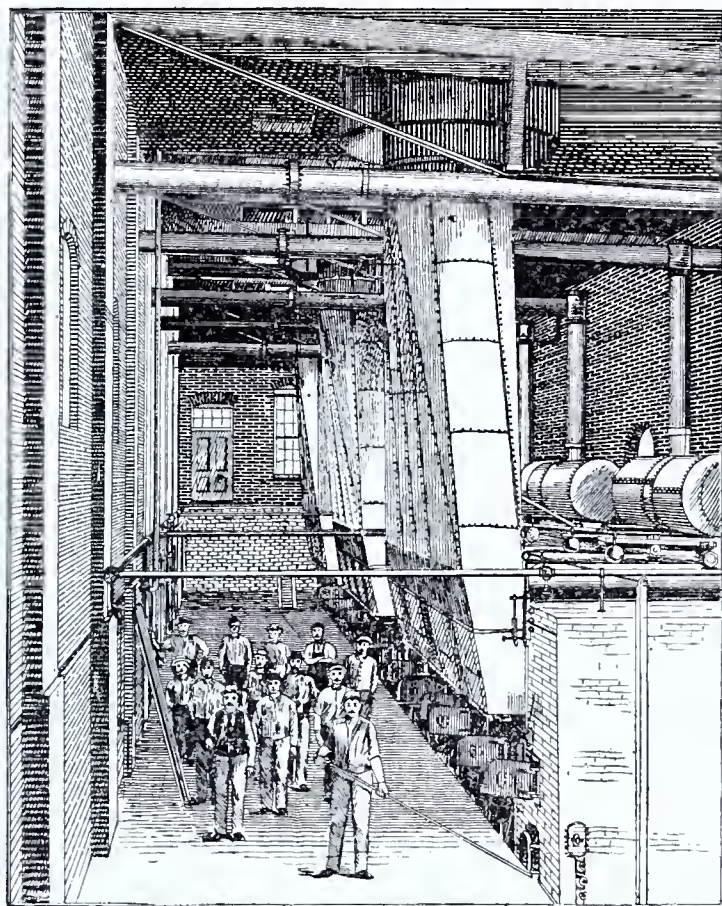
Since the adoption of rapid transit on these two roads the increase in traffic has been phenomenal, and the Citizens' has the satisfaction of a record of being among the very first to abandon horses and mules for traction purposes.

One of the oldest and most indispensable street railroads in St. Louis is the St. Louis Railroad Company's line, generally known as the Broadway cable. Unlike the other roads referred to, which run more or less east and west, this road runs from north to south, connecting the manufacturing section of North St. Louis with the manufacturing and brewing section of South St. Louis and passing through not only the business section of the city, but also through some of its most thickly settled residence wards. The cabling of this road was a very costly undertaking, but the work was done in the most efficient manner possible and the road is a model in every respect.

Visitors to St. Louis who desire to visit the new Merchants' Bridge, the old and the new water works and the cemeteries, all in the northern section of the city, will find the Broadway cable the most convenient for the purpose, while it is also the popular route to the great brewery of the south end.

not only with great care, but with excellent judgment. The roads are shortly to be extended to the city limits, when both their earning powers and usefulness will be materially increased.

The Citizens' Railway Company, under the same management, operates a cable road from Fourth street to King's Highway, running up Franklin avenue and Easton avenue, and from the King's Highway terminus is an extension to the city limits, which is about to be converted into an electric road. No street railroad in the city has had a more remarkable influence on realty values than this Easton avenue cable line, and, although its equipment is very complete, its capacity for carrying passengers is frequently taxed to the very utmost.



CASS AVENUE AND FAIR GROUNDS RAILWAY,
BOILER ROOM.



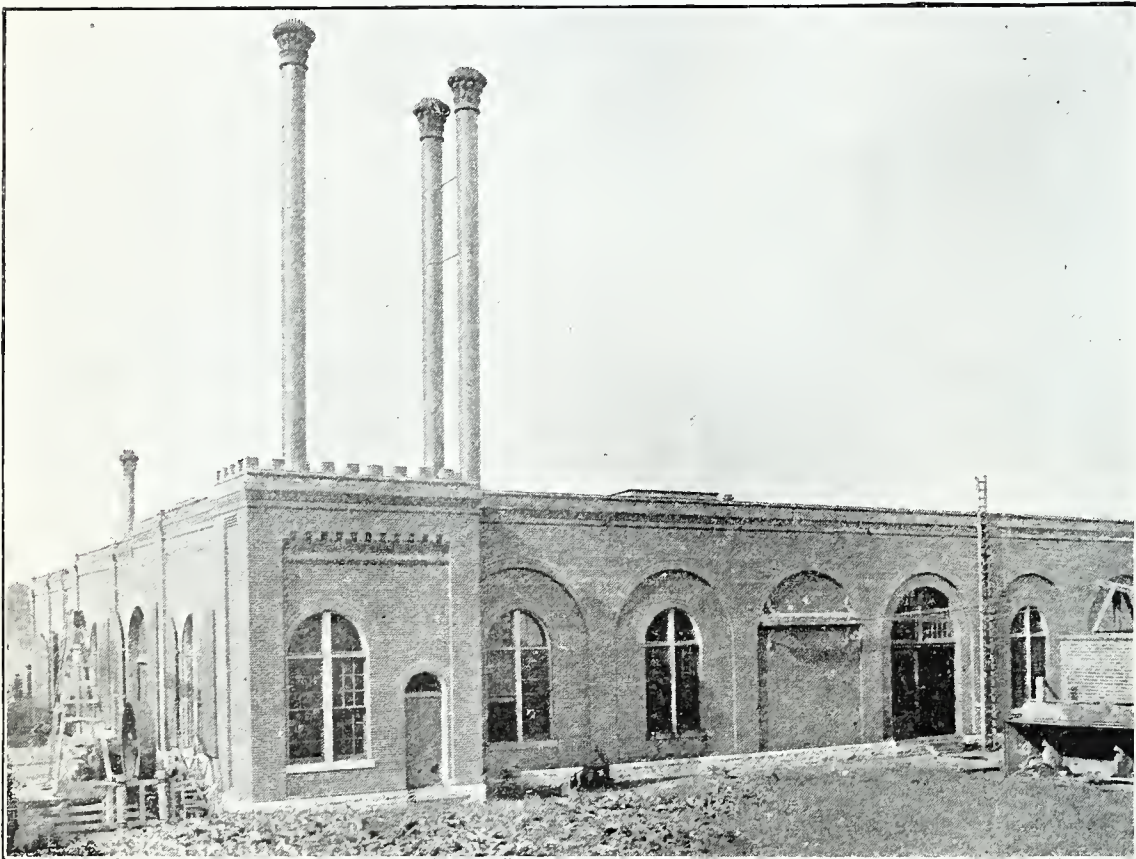
CITIZENS' RAILWAY POWER HOUSE, EASTON AND PRAIRIE AVENUES.

MISSOURI RAILROAD COMPANY.

REFERENCE to the table of traffic returns of the St. Louis street railroads as given on a preceding page, will show that the Missouri Railroad Company carries more than a million passengers a month, and that its popularity is increasing in a most rapid manner. The Olive Street cable road, the most important of the lines of this company, is regarded by experts as the best cable road in America.

It is one of the oldest street ear lines in Missouri, and for many years was operated by horses between Fourth street and Grand avenue. It has now been extended out to Forest Park and forms the

constructed in St. Louis, it is also the most modern in character and most successful in operation. No money was spared in building the road, which is kept in the highest state of repair, with a power house of unlimited capacity and the determination on the part of the management to provide accommodation as nearly perfect as possible. The cars, those used both for summer and winter, are excellently upholstered and are kept scrupulously clean, while the trains run at such frequent intervals that people who are in a hurry use them even if it compels a walk of a few extra blocks. The service is so excellent in every respect that, although electricity



quickest and most direct route between the heart of the city and the park.

It is now erecting a magnificent depot and pavilion close to the Blair statue in Forest Park for the convenience of the thousands of passengers its cars haul daily, and the popularity of the route will be still greater when this building is ready for use. There are few street railroad lines in the country which run so nearly in a straight line and which traverse such a thickly settled and highly improved territory. Starting from Fourth and Olive, close to the Merchants' Exchange and some of the finest office buildings in the city, it runs directly west up Olive street, passing the Federal Building and the Exposition and continuing on its western course, within a block, the great portion of the way, of the finest boulevard and driveway in St. Louis. Although this was one of the first cable railroads con-

has entirely supplanted the cable in the estimation of the people, there is an exception in this instance, and the Olive street road is as much liked as the best electric road in the city.

The popularity of the road is largely the result of the steps taken to prevent overcrowding during those hours in which street railroad traffic is necessarily heavy, and the extra cars put on morning and evening do their relief work in the most acceptable manner.

The Missouri Company have also an electric road running in a straight line to Forest Park. This road, formerly known as the Forest Park & Laclède Railroad, starts from the southern front of the Court House and runs up Market and Chestnut streets, reaching the park by the former thoroughfare, some few blocks south of the cable terminus.

This road is of interest from the fact that in the old horse-car days it was the first and only road running to Forest Park, and the traffic on its cars the first Sunday after it was opened astonished

popular recreation and breathing spots of the city.

Tower Grove Park is reached by the Missouri Company's Electric Road which starts from Fourth

and Market and runs by a very direct route to Shaw's Garden, being in fact the only railroad which carries passengers right to the gates of the great botanical garden, which has made St. Louis popular and famous among students of natural beauty everywhere.

The western terminus of this road is at the northern entrance to Tower Grove Park



even the most sanguine of its officers and patrons. As a horse-car road the Forest Park & Laclede was exceedingly popular, and since it adopted electricity as its motive power, it has increased its business to an enormous extent, and now runs crowded cars at almost all hours of the day. Like the Olive street road, it runs through a residential section very thickly settled, and it parallels the Forest Park Boulevard, which is, practically, an elongated park, and which is becoming exceedingly popular for high-class residences.

The Missouri Railroad Company is the only street railroad corporation in St. Louis running to both Forest Park and Tower Grove Park the two most

and its passengers thus have the advantage of reaching both the garden and the parks without change of cars or delay of any kind.

The management of the entire Missouri Railroad system is of the most able and popular character, and patrons of the road are assured of a good service without any regard to the expense incurred in maintaining it.



UNION DEPOT RAILROADS.

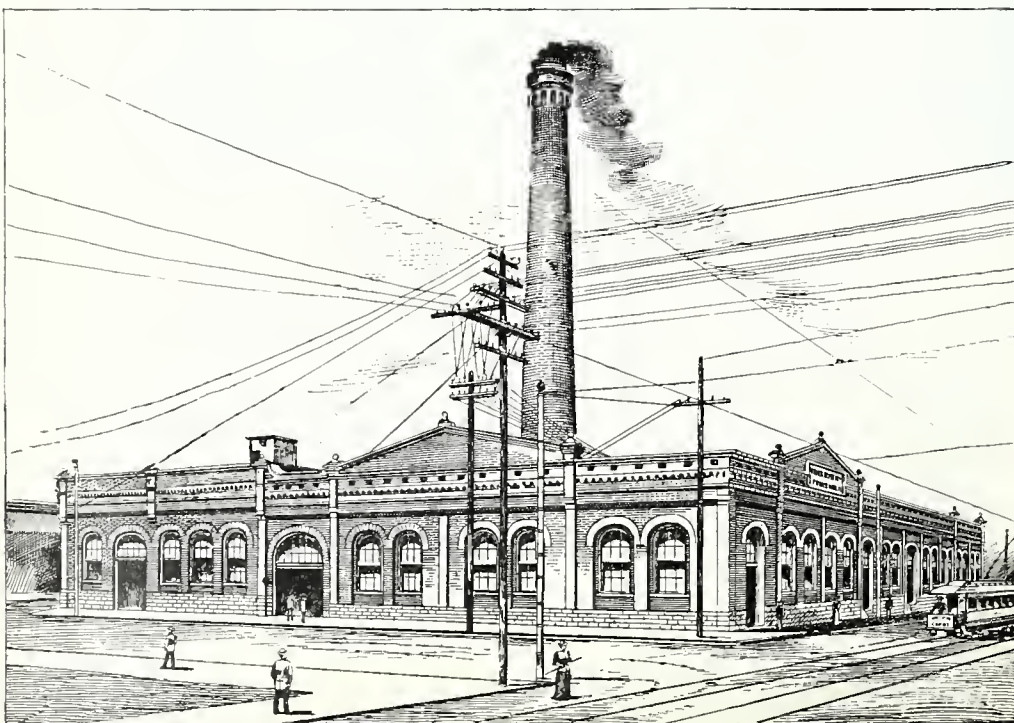
THE Union Depot system of street railroads in St. Louis affords practically the only rapid transit facilities at the disposal of the citizens living in the southwestern section of the city, and it

acter with exceptionally commodious and comfortable cars running at frequent intervals, and with the route so arranged that every precinct is provided with a thoroughly reliable service within easy walking dis-



is exceedingly fortunate for those sections that the system is controlled by one of the most enterprising and energetic capitalists of Missouri, who has given to his patrons a service of the highest possible char-

acter of all parts. The gentleman named, Mr. John Scullin, is largely responsible for the reputation St. Louis enjoys throughout America for its rapid transit service, and more especially for its electric cars.



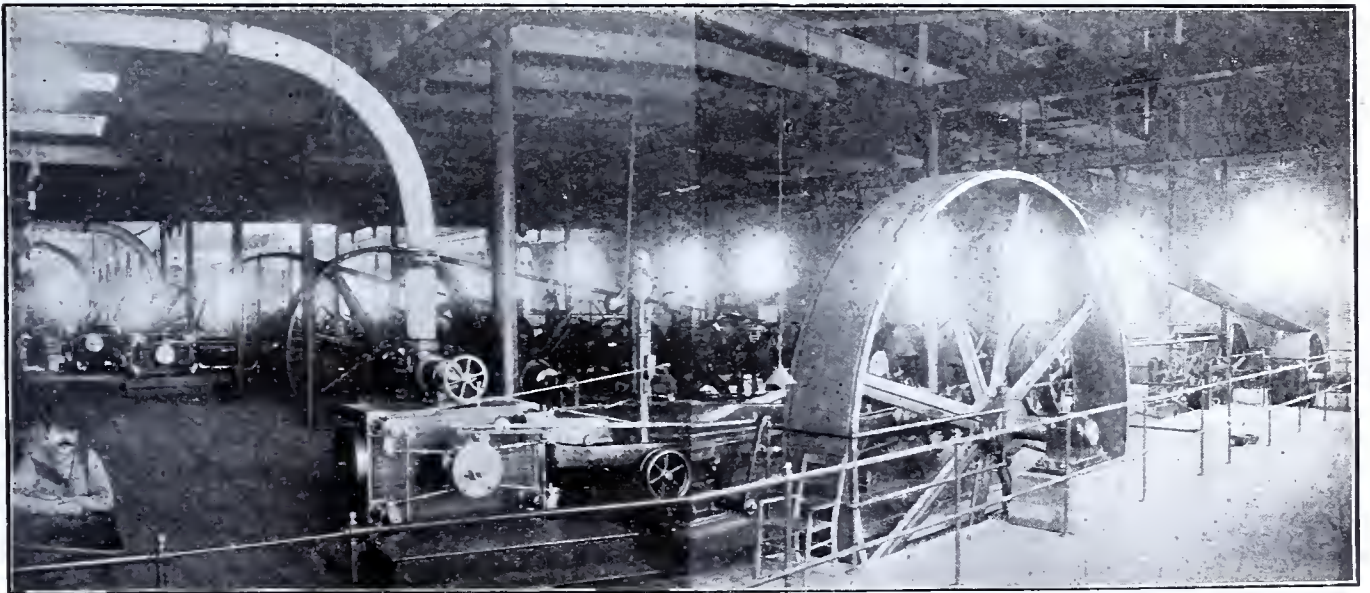
POWER HOUSE UNION DEPOT ELECTRIC RAILROAD.

When Mr. Scullin first introduced electricity in St. Louis as a street railroad motive power, much interest was felt in the change he brought about, and on the trial trip made by an electric car operated by the Thomson-Houston system, there were a number of expert electricians who felt delighted at the way the car climbed steep inclines, and the smooth manner in which it traversed the journey from end to end. Since then electricity has become almost general as a street railroad motive power in St. Louis, but it is not any the less a fact that the first systems on which it was successfully used were the Union Depot and Mound City lines, both of which are largely owned and managed by Mr. Scullin, who, in this, as in many other ways, has aided the development of the city and brought it into prominence in a thousand different ways.

The Union Depot system of cars has a mileage of twelve miles, and they carry about ten million pas-

and that the cars are handsome and commodious and all the most fastidious could desire. The Union Depot lines are especially patronized by visitors because they cross the Twelfth Street bridge adjoining the Union Depot, and by aid of their down-town route carry passengers close to all the principal hotels. The same roads also convey hundreds of thousands of visitors to Tower Grove Park, in the southwest portion of the city, and to the matchless Botanical Gardens established by the late millionaire, Mr. Henry Shaw, and by him bequeathed to the city in which he had resided for so many years. The cars also pass Lafayette Park, one of the beauty spots of America, as well as an immense number of other places of importance and interest which the visitor can hardly afford to miss while in the Great Southwestern Metropolis.

These roads will shortly be connected by the new road referred to with the Mound City and Benton &



INTERIOR OF POWER HOUSE.

sengers a year. The Mound City road is about four miles long, and it carries about five million passengers, while the Benton & Bellefontaine system, which has just been added to the two systems already named, has about ten miles of road and carries about five million passengers. These roads cover the extreme southwest and the extreme northwest sections of the city, and by aid of a cross-town road about to be constructed past the new Union Depot, the roads will all be closely connected, and a passenger will be able to ride from one end of the city to the other for a single fare.

Those who recollect what a poor service was given on these roads before the Scullin influence became paramount, appreciate at its full worth what Mr. Scullin has done for St. Louis, and even those who are unacquainted with the condition of affairs which existed a few years ago will agree when they visit St. Louis that the service is a credit to the State,

Bellefontaine systems, which connect the business sections of St. Louis with the northwestern roads. The Mound City route to the Fair Grounds is very direct and pleasant and affords the quickest service to the great fair, as well as supplying the transportation needs of a thickly settled neighborhood. The Benton-Bellefontaine cars also reach the Fair Grounds by a short route and afford direct connection with the beautiful cemeteries which are visited by so many tourists partly on account of their natural beauty and also because of the melancholy interest which attaches to them as the resting-place of so many illustrious men and women.

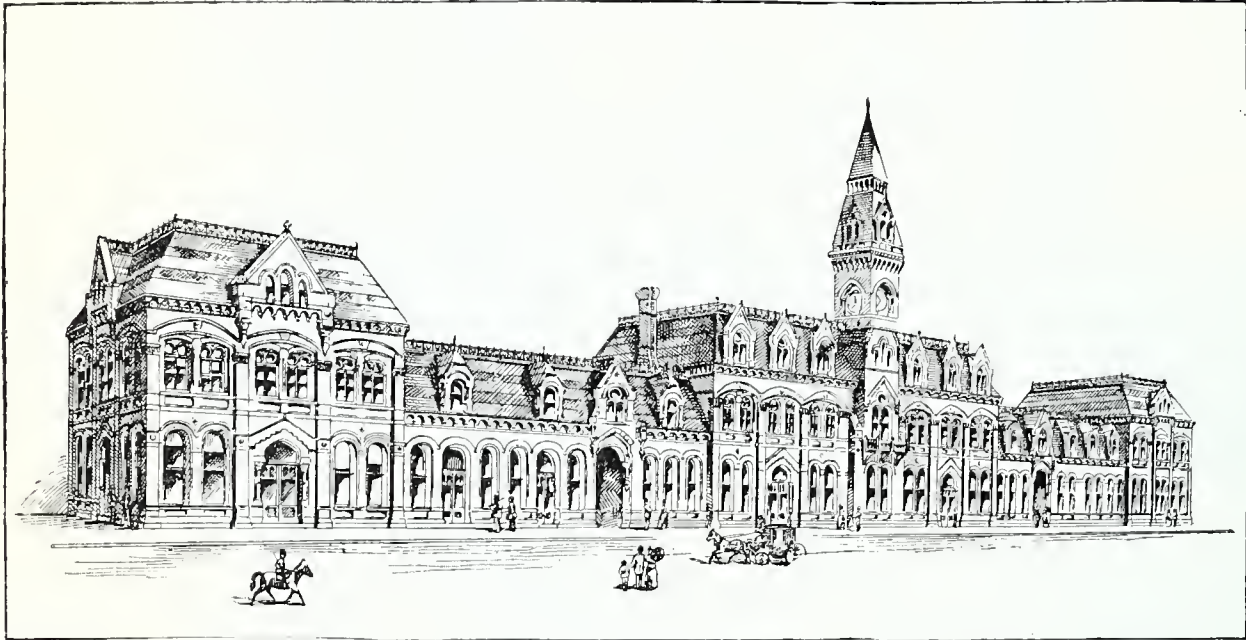
Mr. Scullin's enterprise is also being evidenced by extensive additions to his lines in the southwest, and the system of roads which he has built up and now controls bids fair to become, at an early date, the finest in the country in every respect.

MISSOURI'S RAILROAD FACILITIES.

FEW States in the Union can compare with Missouri in the matter of railroad facilities, and as railroad centers, the cities of St. Louis and Kansas City are noted from the Atlantic to the Pacific for their pre-eminence. The other large cities in the State are also admirably equipped in the matter of

The following railroads are officially returned as having the number of miles mentioned in operation within the State boundaries:

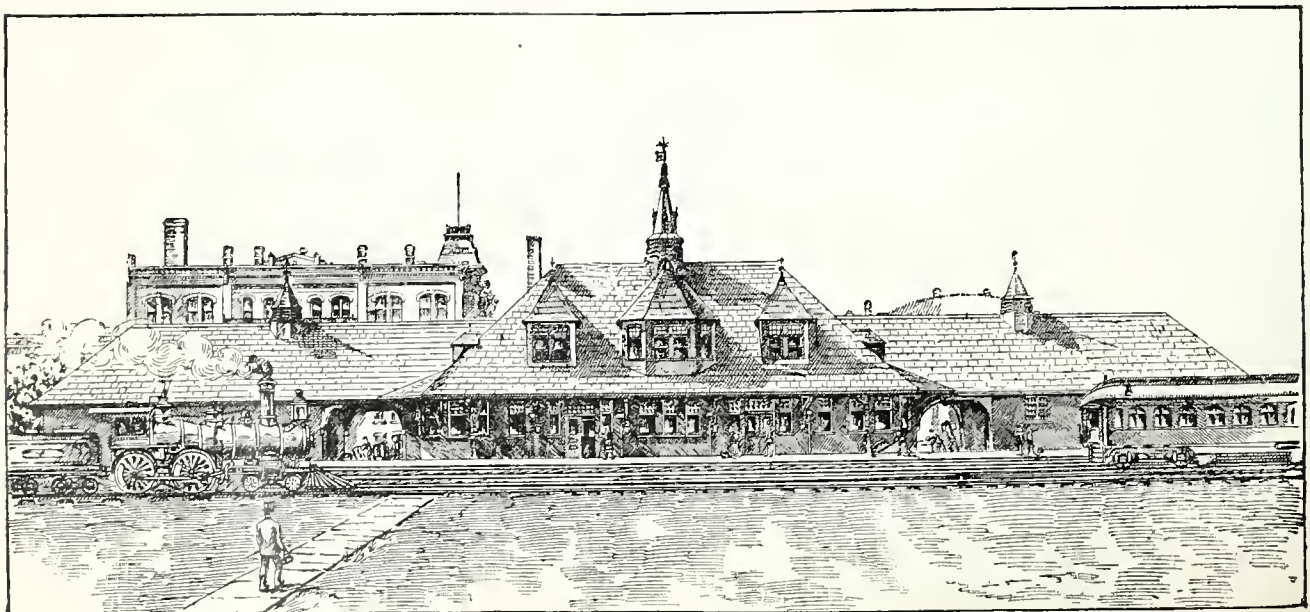
<i>Railroads.</i>	<i>Miles.</i>
Missouri Pacific System.....	1,304
Atchison, Topeka & Santa Fe.....	919



UNION DEPOT, ST. JOSEPH, MO.

terminal and transportation facilities, and their manufacturing and commercial growth is due in large measure to the enterprise of the railroad corporations. The railroad mileage of the State is considerably in excess of 6,250 miles, and when the work now in actual progress is completed, the total will exceed 7,000.

Burlington System.....	886
Wabash Railway System.....	569
Kansas City, Ft. Scott & Memphis R. R.....	517
Chicago & Alton.....	262
Chicago, Rock Island & Pacific.....	231
Missouri, Kansas & Texas.....	248



PASSENGER STATION, SPRINGFIELD, MO. (ST. LOUIS & SAN FRANCISCO RY.)

Railroads.

Chicago, Milwaukee & St. Paul.....	140
St. Louis Southwestern	126
Quincy, Omaha & Kansas City.....	134
St. Louis, Cape Girardeau & Ft. Smith.....	103
Kansas City, Osceola & Southern.....	119
Kansas City, Nevada & Ft. Smith.....	110
Chicago & Great Western.....	86
Keokuk & Western	69
St. Louis & Hannibal.....	81
Mississippi River & Bonne Terre.....	47
Missouri, Kansas & Eastern.....	36

In addition to these there are about thirty other railroads in operation in the State with varying mileage.

The Missouri Pacific total includes the Iron Mountain system; in the Atchison system is included the St. Louis & San Francisco, the Chicago, Santa Fe & California, the St. Joseph, St. Louis & Santa Fe, and the St. Louis & Colorado, and the Burlington system total includes the Keokuk & Northwestern, the Chicago, Burlington & Quincy, the Hannibal & St. Joseph, the Kansas City, St. Joseph & Council Bluffs, and branch roads.

During the forty years ending 1892, the increase in railroad mileage in Missouri has been remarkable, as will be seen from the following table :

Year.	Increase During Year.	Miles in use at close of year.	Year.	Increase During Year.	Miles in use at close of year.
1853.....	32	37	1873.....	185	2858
1854.....	0	37	1874.....	22	2880
1855.....	103	140	1875.....	170	3050
1856.....	4	144	1876.....	90	3140
1857.....	174	318	1877.....	50	3190
1858.....	229	547	1878.....	60	3250
1859.....	177	724	1879.....	367	3617
1860.....	93	817	1880.....	390	4007
1861.....	21	838	1881.....	227	4234
1862.....	0	838	1882.....	267	4501
1863.....	30	868	1883.....	114	4615
1864.....	57	925	1884.....	126	4741
1865.....	0	925	1885.....	276	5017
1866.....	0	925	1886.....	71	5088
1867.....	130	1055	1887.....	584	5672
1868.....	299	1354	1888.....	252	5924
1869.....	358	1712	1889.....	38	5962
1870.....	288	2000	1890.....	164	6126
1871.....	580	2580	1891.....	38	6164
1872.....	93	2673	1892.....	110	6274

At the present time the State has about one mile of railroad (main line) to every ten square miles of territory, and one mile of road to each 450 inhabitants. The value of the railroad properties in the State cannot be estimated exactly, owing to the constant outlay on improvements and increase in lines and equipments, but it is the opinion of experts that \$300,000,000 would not suffice to duplicate the railroad properties in the State, while other good judges are of the opinion that a very much larger sum would be required.

The work done by this empire of railroads is enormous. The number of passengers carried each year exceeds 33,000,000, and, according to the last cal-



PASSENGER DEPOT, MONETT, MO. (ST. LOUIS & SAN FRANCISCO RY).

culatation made, the average distance traveled by each passenger is a little over forty-five miles. Over 60,000,000 tons of freight are moved every year, and the average distance hauled for each ton is nearly 170 miles. In order to carry on a traffic of this magnitude, it is necessary to maintain the roads in a high state of efficiency, and in the last annual report of the State Railroad Commissioner, it is stated that the lines generally are in excellent order. During the year 1891 nearly 2,000,000 cross-ties were used in renewals, and an immense amount of work was done in bridge renewals and similar improvements. The actual mileage of railroad bridges alone was found to be 134.

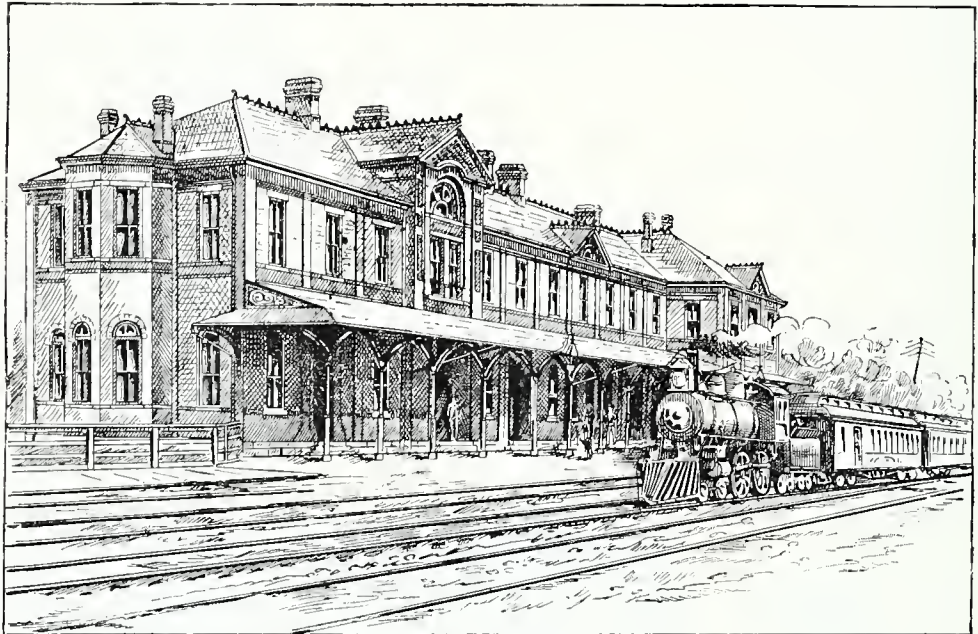
Over seventy-eight per cent of the railroad mileage of Missouri is fenced in, and it is interesting to note that over ninety per cent of the main line tracks are laid with steel rails. About one-half the entire main tracks are ballasted with stone, gravel, cinders or burnt clay, and a large proportion of the remainder needs little ballasting, owing to the nature of the ground on which the road runs.

Census Bulletin No. 155, on the railroad statistics of the sixth group of States, which includes Missouri, shows that this section of the Mississippi valley is blessed in an extraordinary degree in this essential

to progress of every description. The census of 1880 revealed the existence, in the eight States included in the group, of twenty-three thousand miles of railroad in operation, which number increased during the eighties to upwards of 41,000. The number of passenger cars in actual service increased from 84,000 in 1880 to 139,000 in 1889, and the number of freight cars, which was a little less than 100,000 in 1880, more than, doubled itself during the decade. The number of locomotives increased from 3,400 to 6,000, and the number of stations, from 3,600 to 6,300.

But the most eloquent figures in the census are those setting forth the number of passengers and pounds of freight carried. In 1880 the railroads in the division carried 22,000,000 passengers, while in 1889 they carried 61,000,000. The number of passengers carried one mile each in 1880, was a little less than 1,000,000,000, while it was almost 2,000,000,000 in 1889, and was largely in excess of that enormous total in 1892. The number of tons of freight moved in 1880 was 42,000,000 while now it exceeds 100,000,000,

stations within its boundaries, and that nearly every county is well supplied with railroad accommodation. The Labor Commissioner of the State, after making a most careful canvass of the situation early in the year 1892, reported an excellent railroad service in



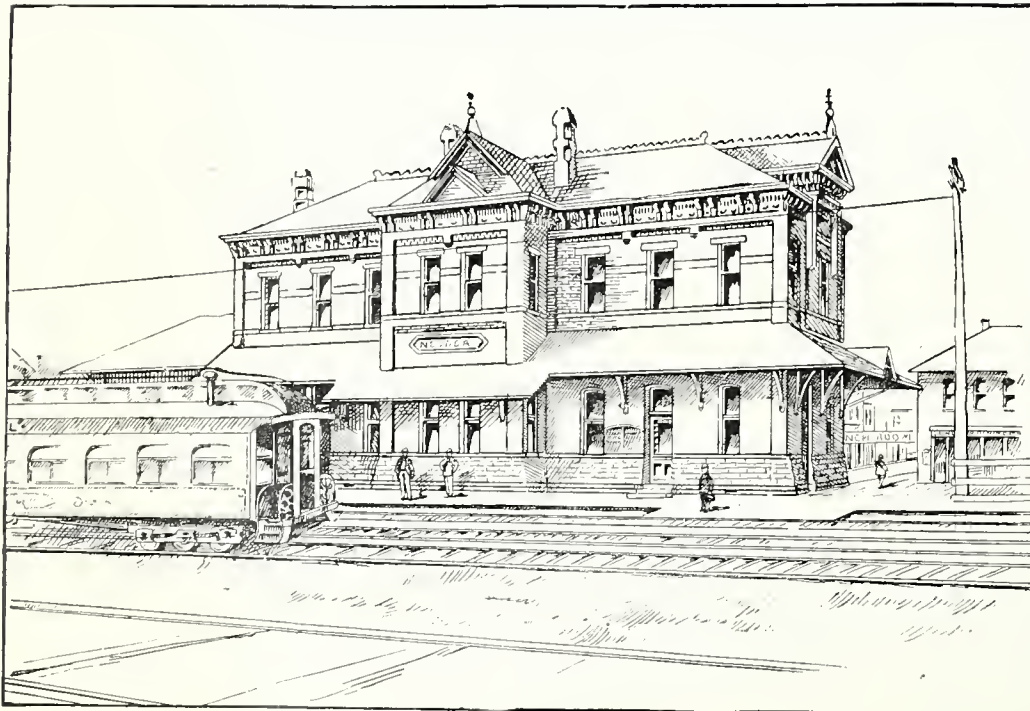
UNION DEPOT, SEDALIA, MO.

every county with the exception of Maries, Dallas, Cedar, Douglas, Stone, Taney and Ozark. The last four counties named are on the extreme southern border, and although there are no railroads running through them, there are stations in such close

proximity that little inconvenience results, and in addition to this, arrangements are already in progress for roads through them. The Labor Commissioner's report showed that the railroads moved during the year, surplus products of the value of about \$130,000,000, and the aid thus given to manufacturing, commerce and agriculture can be easily appreciated.

One of the first questions asked by the immigrant or intending settler, bears relation to the facilities at his disposal for moving his surplus

product and getting it to a good market with the smallest possible delay and expense. The more inquiry of this kind that is made, the greater will be the inclination to select Missouri for a home. Right within the State are some of the best markets



UNION DEPOT, NEVADA, MO.

and the number of tons of freight moved one mile has grown from 6,500,000,000 to upwards of 15,000,000,000.

Returning to the State of Missouri, it may be stated that there are upwards of eleven hundred railroad

of every description, both for the disposal of surplus products and for the necessities of life, while the railroads afford connection with all the great market centers of the country. There is a choice of a large

been always more closely affiliated than has any other principal city, is also entering upon an era of energetic development which will eventually rival and perhaps outstrip that of any other portion of the western country.

"Texas and Oklahoma are already witnessing an activity of energetic enterprise within their borders, which in the one case will soon double the wealth and population of the State, and in the other eventually convert a little-known territory into a State second to none of States touching its borders. Northern Arkansas, with all its natural wealth of field, forest and mountain, remains as yet a practically virgin territory, located within a few hundred miles of St. Louis. Even



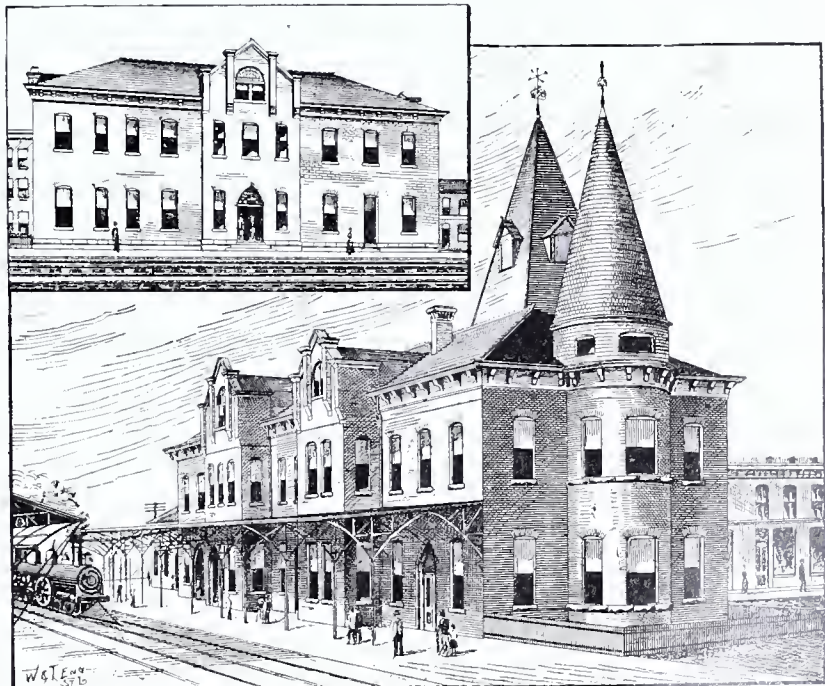
PASSENGER STATION, WARRENSBURG, MO. (MISSOURI PACIFIC RY.)

number of routes to Chicago, while several of the most popular transcontinental routes pass through Missouri, giving easy access to both the Atlantic and Pacific seaboards, and to the great manufacturing and export points of the East. There are several alternative routes to the Gulf of Mexico and to the extreme North, and in short it may be stated that everything that could be desired in the way of railroad facilities has been provided for at least three-fourths of the State, with every prospect of continuous and valuable increase in facilities.

Traffic Commissioner Osgood, in his review of St. Louis railroad facilities for 1892, says:

"The close relations of St. Louis with the Southern States are well known, and the sure progress of 'The New South' will continuously and in increasing measure contribute to hers. Moreover, these relations will be extended and more closely cemented by the future railroad development in that direction, a development which as a matter of fact has already actively commenced. In 1892, one-third of the new railroad mileage of the country was constructed in the district south of the Ohio river and east of the Mississippi. The Southwest, with which section St. Louis has

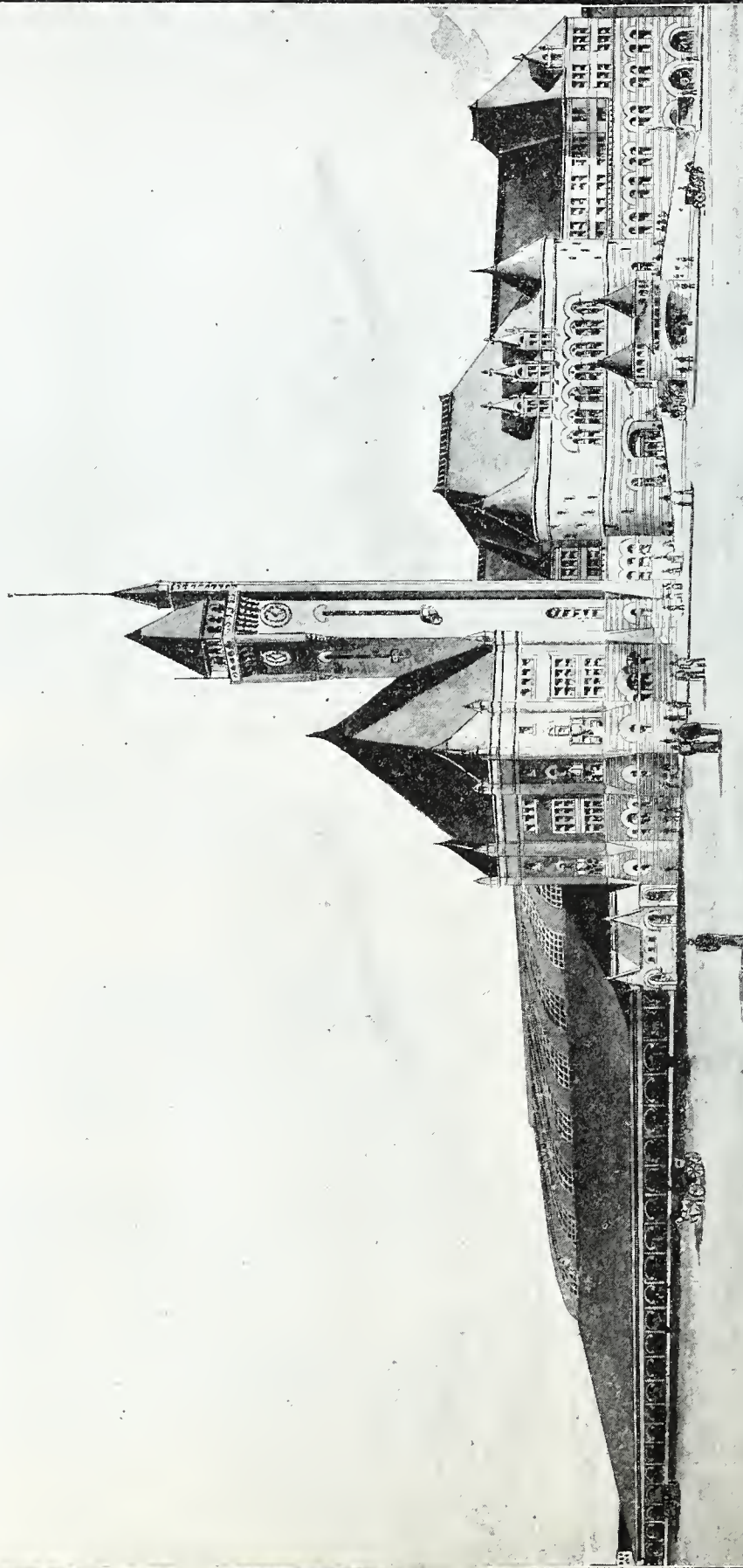
the development of a great part of Missouri is but just commencing. The varied natural resources of Southern Missouri probably exceed those of any equal section of territory in the country, and the mineral



PASSENGER STATION, MOBERLY, MO. (WABASH R. R.)

and agricultural wealth there awaiting development are most remarkable in extent, and will all eventually contribute in one way and another to the increasing commercial importance of St. Louis."

NEW UNION DEPOT



ST. LOUIS UNION DEPOT.

On the opposite page is given a view of the new Union Depot in course of erection in St. Louis.

The depot and yards will occupy the entire property from Market street to the Missouri Pacific tracks and from Eighteenth to Twentieth streets. When completed, these buildings, it is stated, will form the largest and most commodious railway passenger station in the world. Its great size can best be appreciated when one considers that the buildings, sheds and appurtenances cover, in all, about twenty acres; the sheds alone covering an area of nine and three-quarters acres, while the glass in the roof has an extent of two and one-half acres. The cost of the buildings, exclusive of the site, will be in the neighborhood of \$1,500,000.

The main building, or what is known as the "head house," as distinguished from the "train house," will stand forty feet south of the south line of Market street, having a frontage of 455 feet and a width of 80 feet. The construction of this building will be practically fireproof, the front of the entire structure, both upon Market and Eighteenth streets, being of blue Bedford stone; the rear, facing the train shed, of buff brick; while the interior will be largely of marble and iron. An expenditure of between \$600,000 and \$700,000 will be involved in its construction.

In the rear of the main building, as described, will be an auxiliary shed 70x606 feet for ingress and egress of passengers. Abutting against this shed, from which it extends southwardly 630 feet, with a width of 606 feet east and west, and covering 32 parallel tracks, is the train shed proper. This will be built entirely of metal and glass, and its height from the level of the tracks to the comb of the roof will be 100 feet. All trains will be backed into this shed, thus avoiding as far as possible all annoyances from smoke and escaping steam from locomotives. The system of ventilation of both the head house and train shed will be of the most improved methods and elaborate in scope.

The baggage and express business will be handled in separate buildings on Twentieth street, and United States mails in another upon Eighteenth.

It is now expected that this depot will be formally opened for business about August or September, 1893.

While the North End has been witnessing a most remarkable growth of terminal railroad arrangements, great activity and enterprise of the same character has also been witnessed in the "Mill Creek Valley," the properties controlled by the Terminal Railroad Association. So far, the conditions have permitted of only one manifestation of this enterprise; one very large freight house has been constructed, but five others of practically the same size are to be constructed as soon as the ground is available—that is, as soon as the site of the present Union Depot and adjacent yard room can be utilized for the purpose. The freight depot recently constructed, as referred to, and now in operation, is, in its dimensions and appointments, fitted to take rank with those of the North End. It is a slightly brick structure,

660 feet in length by 135 feet in width, the freight shed proper being 625 feet long. The building extends from Ninth to Eleventh street, and from Poplar to a private way on the north side.

There are four tracks under cover, two for in-freight and two for out-freight, accommodating 75 cars altogether. There are 22 doors on each side, or 44 altogether. One side, when contemplated arrangements are entirely completed, will be used exclusively for the receipt of freight, and the other for the delivery of freight. The house has 50,000 square feet of floor space, independent of the space occupied by the tracks. The adjacent streets are paved, and the north side roadway is being graded and paved. On this side will be located two team tracks, each 800 feet long. The station will be lighted entirely by electricity. At Twenty-first street the Terminal Association is constructing yard room capable of accommodating 250 cars, and other improvements of the same character further west are projected.

The railroad systems now centering in St. Louis are the following:

ATCHISON, TOPEKA & SANTA FE ("Frisco Line").
CHICAGO & ALTON ("The Alton").
CHICAGO, BURLINGTON & QUINCY ("Burlington Route").
CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS ("Big Four").
ILLINOIS CENTRAL (via Vandalia Line and Cairo Short Line).
JACKSONVILLE SOUTHEASTERN ("The J. S. E.").
LOUISVILLE & NASHVILLE.
LOUISVILLE, EVANSVILLE & ST. LOUIS ("Air Line").
MISSOURI, KANSAS & TEXAS.
MISSOURI PACIFIC.
MOBILE & OHIO.
OHIO & MISSISSIPPI.
ST. LOUIS & HANNIBAL.
ST. LOUIS & SAN FRANCISCO ("Frisco Line").
ST. LOUIS, ALTON & TERRE HAUTE ("Cairo Short Line").
ST. LOUIS, CHICAGO & ST. PAUL ("Bluff Line").
ST. LOUIS, IRON MOUNTAIN & SOUTHERN ("Iron Mountain").
ST. LOUIS, KANSAS CITY & COLORADO.
ST. LOUIS, KEOKUK & NORTHWESTERN ("Burlington Route").
ST. LOUIS SOUTHWESTERN ("Cotton Belt").
ST. LOUIS, VANDALIA & TERRE HAUTE (Vandalia Line).
TOLEDO, ST. LOUIS & KANSAS CITY ("Clover Leaf").
WABASH.

In addition to the foregoing the following transfer lines connect St. Louis with East St. Louis:

ST. LOUIS MERCHANTS' BRIDGE TERMINAL RY.
TERMINAL RAILROAD ASSOCIATION.
WIGGINS FERRY CO. (and associated lines).
MADISON COUNTY FERRY.
LOUISVILLE, EVANSVILLE & ST. LOUIS R. R. FERRY.
CARONDELET FERRY.

During the past year the following companies have opened for business new and extensive freight depots in St. Louis, all in addition to their other local facilities: Burlington (St. L., K. & N. W.); Vandalia (Pennsylvania Co.); Louisville & Nashville; Terminal Railroad Association; Toledo, St. Louis & Kansas City, and Wabash (now nearing completion).

MISSOURI PACIFIC RAILWAY.

ITS CONCEPTION CONSIDERED A FANCY—THE FIRST SPEECH IN FAVOR OF IT—NOW, AND THEN.

WHETHER looks over the map of the Missouri Pacific Railway, and thinks of its vast traffic, its resources, and the thousands of miles it traverses, and then remembers, with the writer, the time when not even a survey of it was made, and when the conception of a portion of it which should unite St. Louis with Jefferson City was considered a

the thought live and move, and at length shape itself into form and fact.

The Legislature of Missouri in its session of 1849 incorporated a railroad company to build a road from St. Louis to Jefferson City, and thence on to some point on the western line of Van Buren county, and thereafter to the Pacific Ocean.



wild fancy, may realize, to some extent at least, that “to be living is sublime.”

When, in 1849, Thos. H. Benton uttered the words, “The West is the way to the East,” it was thought to be a mechanical phrase or a visionary idea, yet the words had life—power in them—and men began to think of the possibility of reaching the Pacific by railroad.

In the city of St. Louis more than anywhere else, and in one man’s brain more than in any other, did

The act was by most people regarded as “a flash in the pan.” But there were those who regarded it as the first step in a grand march of majestic triumph.

A meeting of the named corporators was called by Thos. Allen at the St. Louis Insurance rooms, and others were invited, and the Hall was crowded. Mr. Allen addressed the company with earnestness. He spoke from brief notes. The writer of this paper reported his remarks, which the speaker afterwards prepared for the press. There was then no railroad

within three hundred miles of St. Louis. Many of its citizens had never seen one—among these the great Edward Bates. Mr. Allen fancied the road built and described the first trip upon it. That sketch follows. It was received with cheers and laughter as a fancy which no man then living would see realized.

“Now let us,” said Mr. Allen, “for a moment imagine the road to be completed. Let us enter the depot or station house, which is the largest house in the city. Here we see boxes of merchandise of all sizes, and various articles of household and family utensils, hogsheads of sugar, sacks of coffee and of salt, barrels of molasses and of whisky, kits of mackerel, boxes of raisins, bundles of paper, wagons in pieces and small carriages, kegs of nails, bars of iron, boxes of Indian goods, of shoes, hats, tar and turpentine, marked for the towns in the interior, and some for Deseret, all of which the men are at work placing in the freight train. There is none of that disorder and flurry which exists upon the levee, but all is neatness and order, conducted systematically and under the strictest discipline and accountability.

“But the bell is ringing. We will take our ticket, and step aboard the passenger train with fifty or sixty other passengers who are destined for various points along the line of the road. Off we go with the speed of twenty-five miles an hour. We have not gone five miles when the pace of the train is slackened and we observe one or two gentlemen jumping off at the suburban residences. A few miles further is a platform and a turnout. Here several are waiting to get off to go to their dwellings. Here also we observe a string of open cars laden with coal. We pass on, scarcely having time to observe the fine residences which city gentlemen have constructed all along each side of the road, but we stop every few moments to let off a passenger or two and take on as many more, so that our number is kept about the same. Here we pass a train loaded with wood, with a few cars of baled hay attached. The country on either side seems to be full of busy men and every farm occupied. Directly we reach a water station where we observe immense piles of cord wood, and many men engaged in hauling and cording. Here also is a small refreshment house, and here again we leave and take on a few passengers. Directly we come in sight of the Missouri, and catch a glimpse, as we pass, of a steamboat, with a small freight and a few passengers, puffing away and hard on a sandbar. Soon we meet a freight train loaded with pigs of lead and copper and iron from Franklin county. In about two hours from St. Louis we are at the Union Station, where we discharge a few passengers and observe large piles of metal pigs. Though stopping now and then to leave or take on a passenger or to supply the engine with water, we are soon in Gasconade county. We pass cars laden with cannel coal, and we discharge at Hermann Station a number of Germans and their baggage, and we observe some cars receiving freight, some of it apparently pianos, and quite a number of pipes one would suppose to be wine—all the manufacture of Hermann.

We are come, however, to the crossing of the Gasconade, which is a grand bridge of solid masonry of great strength and durability. Here is quite an important station, and we notice a number of new buildings going up on lots sold by the railway company; immense quantities of yellow pine piled up, and a number of cars attached to an engine ready to start to St. Louis with a heavy load of lumber.

“We cross the Lamine, stop at the Saline Station, and we are struck with the fine appearance of the country as we pass on and observe numerous excellent farms. We leave a few passengers at Lexington Station, a few miles south of that place, and reach our station not far from the Kansas river (Kaw river) about tea time, having been about ten hours from St. Louis. Here our remaining passengers, to the number of about twenty or thirty, dispose themselves for the night at a good hotel, intending in the morning to be off for Independence, Liberty, Westport and St. Joseph, and other places up the river. The hotel is quite full of passengers, there being as many to go down as up, and in the station house is a freight train ready to start. It was remarked that there was not less than a thousand tons of freight that day on this road.

“Now, although this be an imaginary trip, who can doubt, who knows anything of railroads, that the picture would be fully if not more than realized upon the opening of such a road.

“Can we do any better than to take the two thousand shares required preliminary to the permanent organization? I am strong in the belief that if the road had been built but fifty miles, or if built to Jefferson City, it would pay.”

It is almost impossible for a citizen of St. Louis to picture the scene and the surroundings when that fancy trip was sketched.

It was the 31st of March. The rivers were blocked with ice. The streets were covered with snow. Few mails, sometimes not any, were received. Business was at a standstill. Was it possible that all this would be changed in a few years, that business in winter would surpass that of spring and summer, that the whole country would change front? Few believed it. Only the farsighted or sanguine could hope for it. Forty years have passed, and look at the Missouri Pacific Railway and at St. Louis to-day.

After Mr. Allen's address he said with a smile, “Gentlemen, now is the time for action,” and turned the key in the door. He appealed to those present to take stock. It was responded to in this wise:

Jas. H. Lucas.....	333 shares,	\$33,300
Jno. O'Fallon.....	333 shares,	33,300
Daniel Page.....	333 shares,	33,300

Total.....	\$99,900
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This lacked one hundred dollars of one hundred thousand. They pleasantly agreed to toss up for the odd hundred. Mr. O'Fallon won and subscribed it. And then the others subscribed, amounting in all to \$134,000.

This was ahead of all cool calculation then. What is it now?

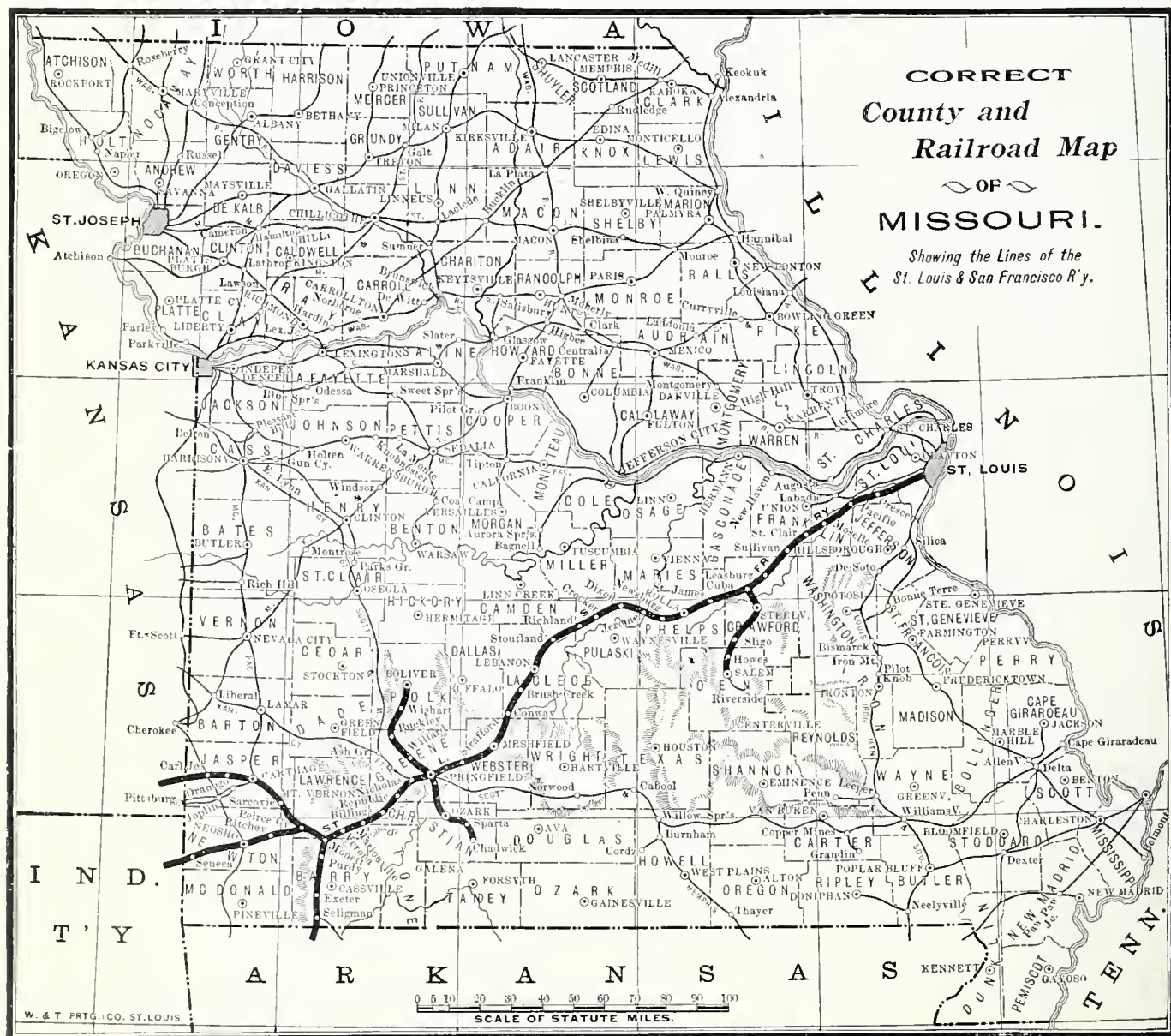
ST. LOUIS & SAN FRANCISCO RAILWAY.

If the growth of the country to the Southwest of St. Louis were carefully traced, it would be found to coincide almost exactly with the extension of the "Frisco" lines. This road did not come into this territory to secure a traffic already developed, but it constructed its lines and branches, and the country has developed around them. It has created an empire in the wilderness.

This railway's main line extends diagonally from St. Louis to the southwest corner of the State of

The pride of the "Frisco" has always been in its physical condition. This has been kept, since the building of the road, at the highest standard of perfection, and, combined with its excellent passenger train service, has made the "Frisco" one of the most popular roads in the country for travel of all classes.

The famous Ozark region of Missouri and Arkansas is traversed by the St. Louis & San Francisco Ry. As is well known, this country is celebrated



Missouri, and separating here, one extension crosses Arkansas and Indian Territory and becomes one of the main arteries between St. Louis and the principal cities and the great agricultural region of Texas. The other extension, bearing westward, crosses Southern Kansas, and, because of being a part of the great Santa Fe System, puts St. Louis also into direct communication with the whole West and Southwest, reaching to Denver and Pueblo, El Paso, Mexico, San Francisco, Los Angeles and all intervening territory.

for its mineral and other medicinal springs, several of which are located on this road. Lebanon Springs has long been noted for the curative properties of its waters, and is exceedingly popular with St. Louisans, who sojourn there at all seasons of the year.

Eureka Springs, in Northwest Arkansas, is one of the oldest and best-known resorts in the West. Its waters are familiar to the physicians of the whole country, and thousands of patients are sent here every year.

THE WABASH RAILROAD.

THIS magnificent system now operates over 2,200 miles of road, runs through the richest portions of Missouri, Illinois, Iowa, Indiana, Ohio and Michigan, and connects with more large cities and great marts of trade than any other line, bringing Omaha, Kansas City, Des Moines, Keokuk, Quincy, St. Louis, Chicago, Toledo and Detroit together with one continuous line of steel rails. The Wabash has an immense freight traffic of the cereals, live stock,

has always taken an advanced position in tariffs, and its course towards its patrons has been just and liberal, so that it has always enjoyed the commendation of the business and traveling public. The roadbed is one of the best in the country, and is ballasted with gravel and stone, well tied and laid with steel rails. The bridges along the various lines and branches are substantial structures. The depots, grounds and general property of the road are in good condition. The



various productions and manufactured articles of the West and the States through which it passes. Its facilities for rapid transit for the vast productions of the packing houses of Kansas City and St. Louis, to Chicago, Detroit, Toledo and the Eastern marts of trade is unequalled. A large proportion of the grain productions of Kansas, Nebraska, Iowa, Missouri, Illinois and Indiana finds its way to the Eastern markets over the lines of this road. The Wabash

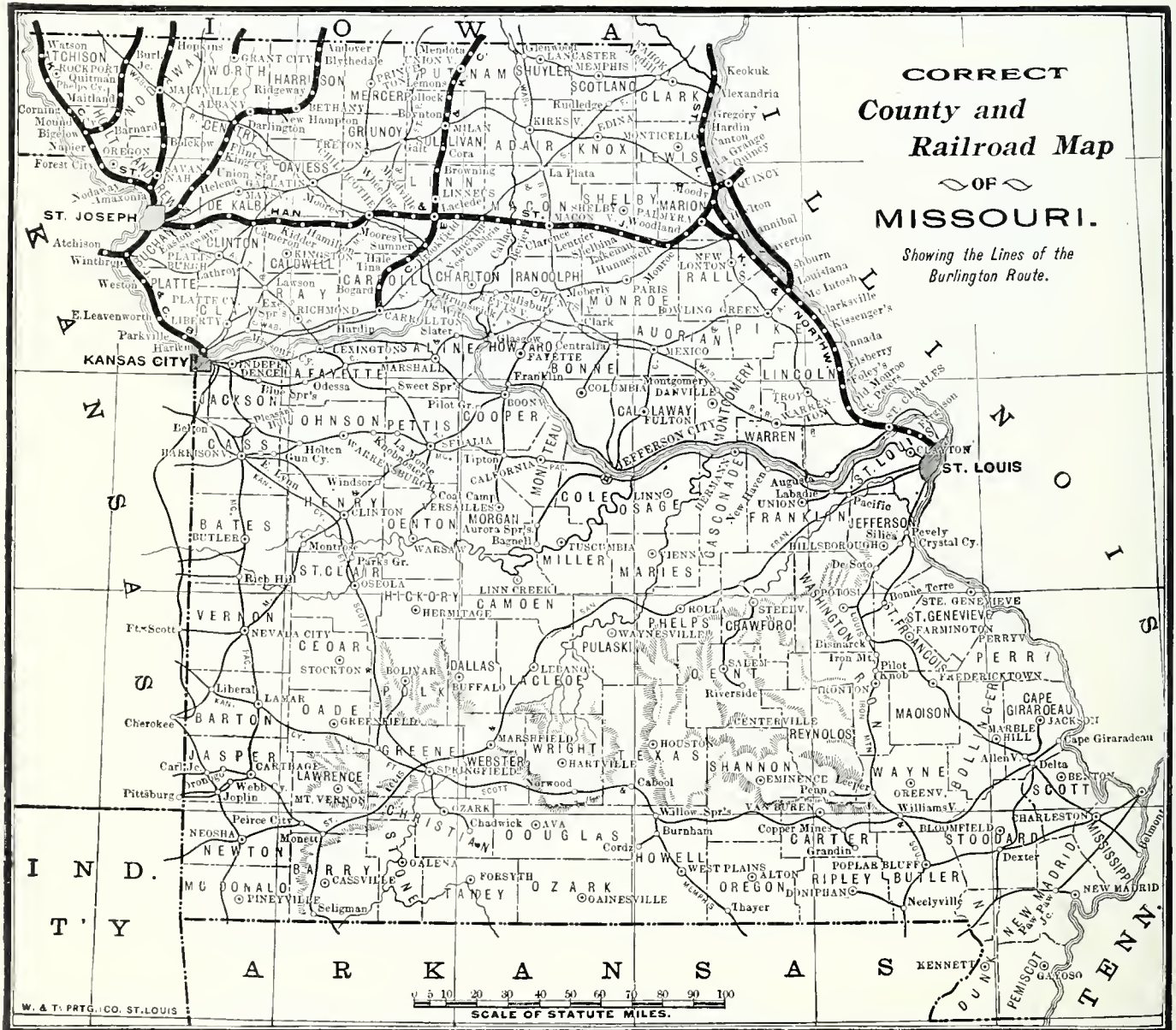
management of the Wabash is fully abreast of the times. The road is progressive in every respect. The finest passenger cars on the continent are run on its lines, and every effort is made to advance the interests of its patrons. The passenger department is unexcelled for the elegant and substantial comfort afforded travelers.

On several of the more important branches of the system dining cars are run.

THE BURLINGTON ROUTE.

THE great factor that has most affected the railroad, shipping and commercial interests in St. Louis in the past half decade has been the movement of the Burlington Route. Within that time this road has given to St. Louis an entirely new terminal territory, and has brought the city into direct communication with all parts of the Northwest and West, which its lines and extensions reach. Millions of dollars have been spent by the Burlington in securing suitable property for its terminals and erecting

was followed immediately by an improvement of train service to all western points, St. Louis being put in direct communication with the States of Iowa, Nebraska, Kansas and Colorado. This road was the first to inaugurate a fast train service between St. Louis and Denver, which has not yet been equaled by any of its competitors. This is the situation of the Burlington as a St. Louis road, but its close relation to the commercial greatness of this city is but one of its features. The Burlington



gigantic warehouses for the accommodation of its traffic. This movement was brought about in a manner which only large corporations backed by inexhaustible means could accomplish, and the results have brought untold good to St. Louis. The large and wealthy territory of the Northwest has been opened up to the merchants of the city, and they have secured a vast volume of trade from this source, which has hitherto, but unjustly, been taken elsewhere. The entrance of the Burlington into St. Louis

was one of the pioneer roads of the West, and has long been one of its principal arteries of commerce. Its superiority of equipment, its long distance, through sleeping car service, its excellent roadbed, made it long ago a popular line with the traveling public, and it has always maintained its high standing by adopting all improvements, comforts, conveniences and luxuries. It has special provision for World's Fair travel, and those who take this line will not be disappointed in their choice.

RIVER TRANSPORTATION FACILITIES.

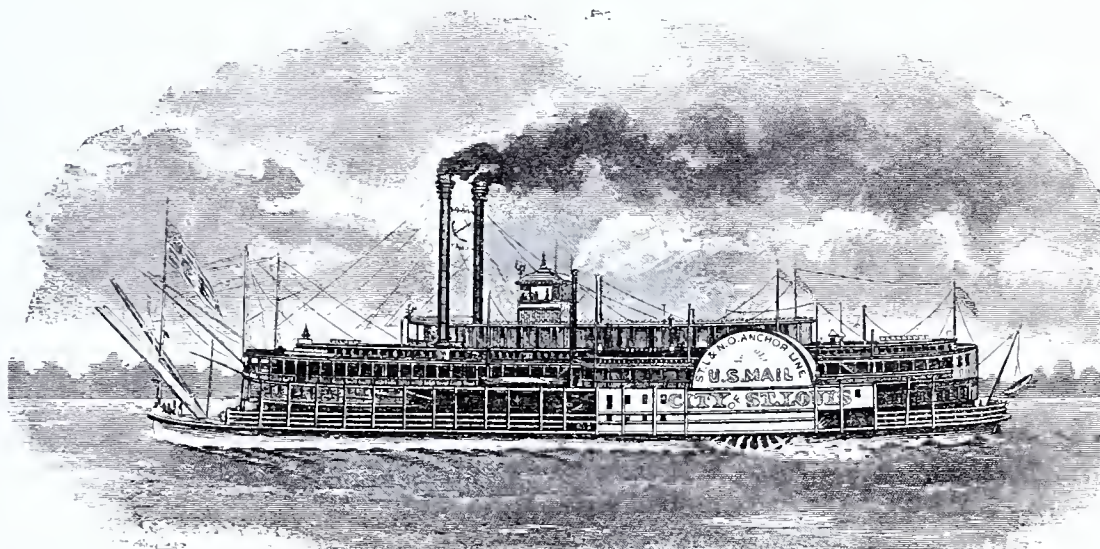
MISSOURI is probably the best watered State in the Union, with the mighty Mississippi forming its eastern boundary line and with the Missouri running across it from west to east and connecting Kansas City with St. Louis. The Federal Government has not lived entirely up to its responsibilities in regard to these waterways, but as the result of vigorous efforts made in St. Louis and other cities, arrangements have been made for the appropriation of very large sums of money every year until the channel has been deepened and traffic made easy for larger ships than can navigate safely at all times of the year.

Few people are aware of the enormous amount of business transacted on the river. The equipment of the streams with which St. Louis has direct traffic and large proprietary interests embraces upwards of 1,300 boats, which move every year upwards of fifteen million tons of merchandise and raw material. The improvements contemplated by the Government

tains two large steamers in the trade and on the lower end of the river two other steamers are kept at work.

The most important river traffic to and from St. Louis is handled by the St. Louis & New Orleans Anchor Line, of which Mr. Isaac M. Mason, ex-president of the Merchants' Exchange, is president; Mr. Theo. Ziegler, secretary, and Mr. John Bird, freight agent.

The head offices of the company are at the foot of Chestnut street, St. Louis, and it has permanent agencies at Cairo, Ill.; Memphis, Tenn.; Vicksburg, Miss.; Natchez, Miss., and New Orleans, La. Its magnificent passenger and freight steamers are named after the principal cities between which they ply, their names being the City of St. Louis, City of New Orleans, City of Hickman, Arkansas City, Crystal City, City of Monroe, City of Cairo, City of Vicksburg, City of Providence, and Belle Memphis.



in the Mississippi provide for a minimum depth of water between St. Louis and St. Paul of six feet, and between St. Louis and the Gulf of eight feet, and this will result in immense increase in the equipment of the streams and the freight carried.

The year 1892 was not a very favorable one for the river interests, although freights were plentiful and but for natural difficulties the year would have been a very busy one. The tonnage received at St. Louis by steamboat, barge and raft was much larger than in the preceding year, in spite of the difficulties referred to, reaching a total of nearly 700,000 tons, as compared with 600,000 in 1891, and 660,000 in 1890. The shipments, however, were scarcely maintained, although half a million tons were sent from the city by river.

One interesting feature of the river business is the traffic on the Missouri river between St. Louis and Kansas City. The work is not without difficulties, but the Kansas City Transportation Company main-

The Anchor Line passenger service between St. Louis, Cairo, Memphis, Vicksburg, Natchez and New Orleans, is excellent, the steamers being palatial in every character, with a cuisine equal to that of the best hotel, with state rooms on deck, and with every accommodation for passengers. A more delightful trip than a ride down the river on one of these steamboats can scarcely be imagined, and visitors to the World's Fair who can spare the time will learn more of the country by one of these trips than by traveling many thousand miles by rail. Many points of historical interest and much scenery of great beauty can be seen on a journey from St. Louis to New Orleans, the trip occupying about seven days.

The company also does a very large freight business of a most important character, and although it is rather as a passenger route that the Anchor Line will commend itself to tourists and visitors to the fair, its importance as a carrier of freight and express is too great to be overlooked.

